MAY 1957

approach

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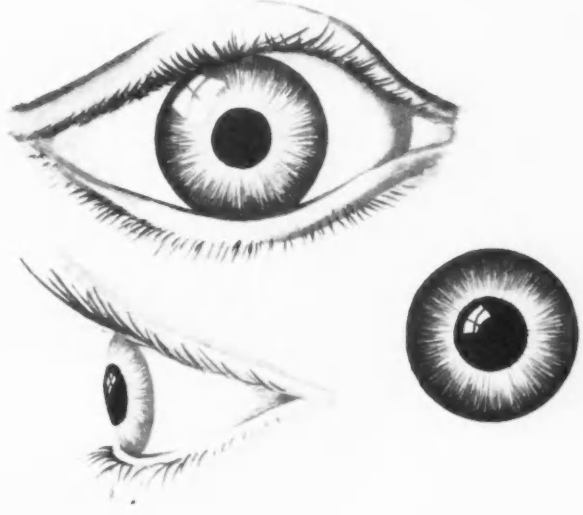
THE NAVAL AVIATION SAFETY REVIEW



SEE *AND BE*
SEEN . . . see page 22

Vol. 2 No. 11

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OUTLOOK — PROMISING

On pages 22 and 23 *Approach* is privileged to reproduce a letter from Mr. James T. Pyle, Acting Administrator of Civil Aeronautics, requesting the cooperation of the Navy in a joint effort to reduce the hazards of near-miss incidents.

Accompanying the letter is the reply of Admiral Arleigh Burke, Chief of Naval Operations, whose prompt endorsement of the proposed program includes the assurance that the Navy will continue to stress the need for vigilance against mid-air collision situations.

Mr. Pyle has outlined a seven-point program which includes the major areas of emphasis in coping with the problem, and any thoughful observer of the aviation scene will immediately recognize each of these factors to be the hard-earned product of accumulated experience.

For those of us in naval aviation, there is clearly indicated the responsibility to apply these seven points to every phase of flight operations. Specifically, squadron and air station commanders must relate these factors to their own missions.

For example, there is still evident a disturbing inadequacy of squadron doctrine adapted to local air traffic density problem—or do all of *your* type-instrument flights studiously avoid simulated climbouts which track through nearby airways and intersections? Are *your* return-to-base channels and entry points established in a light traffic sector? Or are they, for the most part, casual, tangential approaches based on convenience?

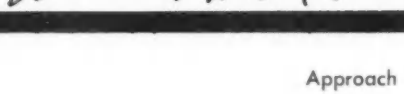
There are many other considerations well worth exploiting, such as the highly questionable use of the "Thousand On Top" clearance, and the additional planning to be exercised in maneuvering unwieldy formation flights.

The potential for improved air doctrine and discipline is limited only by the initiative of those who lead in the air and on the ground. These examples are suggested only to prompt the many additional questions which should result from a searching review of individual situations.

Nor should the squadron station commander grumble impatiently at the unhappy prospect of having his basic mission compromised by an over-zealous safety effort. On the contrary, long, often bitter experience dictates that the primary aviation mission can best be accomplished in a *safely* effective manner. This simply means that aviation safety may *not* be put on, like an article of flight gear, to be discarded between flights—or administrative inspections.

And because it has also been conclusively established that no two bodies may occupy the same space at the same time, even on a proper clearance, the wise commander will complement his tactical training effort with a proportionate measure of safe-flight doctrine calculated to reduce the mid-air collision threat to a minimum.

Only in this way can naval aviation perform its assigned tasks with the efficiency required for complete success.

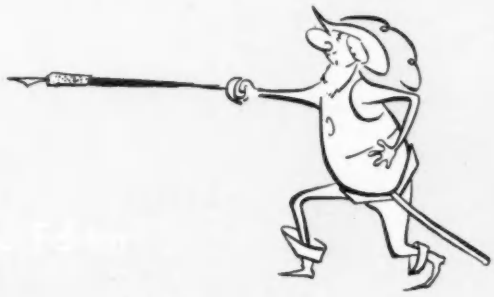


IN THIS ISSUE

ON THE COVER

"See-saw-scene" might best describe artist Dick Gender's cover impression of the startling speed with which airplanes can appear out of nowhere.

Simply put, your best protection against the hazards of a near-miss is a high "eye-cue." How's yours?



Letters may be forwarded either via official channels or direct on Anymouse forms. While all letters should be signed, names will be withheld on request. Address Approach Editor, U. S. Naval Aviation Safety Center, NAS Norfolk 11, Virginia.

DOUBLE JEOPARDY?

Sir:

Re: photos on page 17, March 1957 issue. Ya gotta bust—pictures of two different aircraft to illustrate one accident!

DISILLUSIONED

Ouch! Both filmstrips were in the same AAR, showing how the weather was deteriorating between the two landings.—Ed.

TOUCHE'

Sir:

. . . . Isn't it OpNav Inst. 3710.7A rather than .7, which requires the fitting procedure for all flight personnel? [April, Notes from your Flight Surgeon.]

NUGGET

Right!—Ed.

MISSED "APPROACH"

Sir:

Thank God for your *Approach* questionnaire! ["Crossfeed" No. 10] Referring to questions number 2 and number 7, I was really dismayed to find the small percentage of mechs, linemen, etc. who even got to see *Approach*, much less able to give me an evaluation on it.

Although this note is proving a little embarrassing to write, it's nevertheless setting me hot in a much more thorough promulgation program for maintenance personnel; namely reading info racks in all maintenance spaces, including not only *Approach*, but Fliga Digest and applicable accident summaries as well.

The junior pilots in the squadron mentioned that while in the Training Command they *very* seldom got to see *Approach*. How come?

WILLIAM F. SHERWOOD
LTJG, ASO-VF 173

THE NAVY HATH NO "FURY" . . .

Sir:

In your February issue, I noticed a rather strange thing on pages 14-15. The FJ-4 on the double page spread of the article, "Flying the Fury Four" seems to have both ailerons depressed considerably. Is this an aerodynamic phenomenon, an optical illusion, or is there a gremlin in your photographic department??

H. L. AUGEE, 1st LT
VMF-323, MAG-15
MCAS, El Toro

Good eye, Lt. Augee. The photo shows a prototype of the Fury Four *in flight. Its ailerons dropped with the flaps to provide an increased flap area. Production models do not have this feature.—Ed.*

Please turn page

LETTERS
Continued

LOX CLEANING SOLUTION—PROBLEM?

Sir:

An article (December '56 *Approach*) emphasized the extreme danger in allowing LOX to come in contact with alcohol.

The cleaning solution (R51-C-1570) now used on gaseous oxygen systems contains a mixture of isopropyl alcohol and freon. From your article it would seem that this should not be used on LOX systems. Aviation Clothing and Survival Equipment Bulletin 5-56, to which the article refers, does not mention the hazards of alcohol in connection with LOX; nor does it list a cleaning solution suitable for use on LOX systems.

Therefore, should not ACSEB 5-56 be revised to include a mention of the hazards caused by alcohol and also to specify a cleaning solution suitable for use on LOX recharging units and aircraft systems?

L. C. HENRY, PR1
NAS, South Weymouth, Mass.

Your observation was referred to BuAer. They say a forthcoming ACSEB, No. 7, will "clear" this matter up for all hands.

CHECK YOUR TIRES, SIR?

Sir:

A pilot on AD familiarization experienced a blown tire during the final phase of the takeoff roll. After using most of his fuel, a safe landing was effected with no damage to the aircraft. This near-accident occurred during the supervised landing phase when five to six landings are made during the first flight . . . each landing is a full stop with an engine runup prior to the next takeoff.

To prevent a recurrence of incidents of this type, this squadron initiated the following preventive measures: . . . After a landing a plane captain from the squadron engineering department inspects the tires for worn areas and any indications of aircraft discrepancies. This procedure has prevented numerous possible accident situations by downing aircraft with worn tires, and on one occasion prevented a pilot from taking off in an aircraft with a faulty engine cylinder.

This simple safety practice directly discloses possible accident cause-factors and the pilot, in the aircraft for the first time, is more at ease knowing that fully qualified personnel are inspecting his aircraft after each landing.

W. D. WATSON
Marine Attack Training Squadron 20

Congratulations, VMAT-20 for your professional approach to accident prevention.—Ed.

JETSAM—HAND-PICKED ANSWER

Sir:

With the advent of jet aircraft came a new problem for air stations—that of having meticulously clean ramps and taxi areas. Granted, the Navy has always prided itself with clean ramps, but with propeller-driven aircraft the need was never so great as it is today. One small pebble, nut or bolt, can ruin a jet engine turning over at the high RPM at which it runs. Indeed a small piece of safety wire can put a jet engine out of commission.

We of Eighty-Six believe that we have found a solution to this grave problem—if not a 100 percent solution, certainly one which will cut down the number of jet engine foreign body damages occurring here at Oceana. We propose that we will take our entire Squadron one morning each week, line them up at double arm's interval at one end of the parking ramp and police from there to the other end, picking up every piece of "engine-poison" that we find en route.

This is a continuing problem. We have offered a solution and have put it into effect here. We believe that if a similar move is made by squadrons throughout the Navy we can have much cleaner ramps—less foreign body damage. How about it? Is the 15 minutes required not worth it?

G. BOICE
Commanding Officer
Attack Squadron EIGHTY-SIX

Worth it? Units which are not using similar policing systems are incurring foreign-object-damaged engines at the rate of 25 percent. Please see "Jetsam," March 1957 Approach.—*Ed.*

IDEA DEP'T.

Dear Sir:

I was interested in your article relative to wheels-up landings in the February issue. It has seemed to me that the first step in solving the problem is to devise a suitable warning device located in the aircraft. The next step is to determine some "action" on the part of the pilot which is always performed naturally incident to a landing. . . . For a variety of reasons, a warning device associated with closing the throttle is not a good action; most modern aircraft have a high drag in the landing on figuration and the throttle is not closed naturally until the aircraft is on the deck, or nearly so. . . .

. . . It appears that a pilot almost always glances at his airspeed indicator several times during an approach. . . . My proposal is for a warning device which is actuated as a function of airspeed whenever the airspeed drops to approach airspeed without the landing gear being in the down position. It is further proposed that the warning itself be of the nature of a wheel flag similar to the "OFF" flag which is presently used to warn the pilot when the OMNI signal is not re-

liable. . . .

ROBERT A. WEATHERUP, CDR,
Operations Officer USS BOXER
(CVS-21)

You've certainly put your finger on the problem—a natural action (AND non-habitual) on the part of the pilot. Your idea is good and we thank you for it. We've seen a proposal for a movable lune shape on the face of the airspeed indicator that covers the approach speed range when the gear is up and drops back out of the way when the gear is down. We're also pushing the random pattern counter which requires a pilot to report an unpredictable three digit number when giving his "gear down and locked" on base leg. Any other suggestions?—Ed.

MAKES YOU SEE RED

Sir:

In this high-powered age of steam cats, angled decks, sweptwings and mach numbers another innovation has come to my attention.

In the good old days of mixture and prop pitch controls we sat on a parachute which is essentially the same as the one we use today. But recently this wonderful medium of the nylon letdown has been slightly altered.

The old chutes had a buckle on one leg strap and a ring on the other with their mates on opposite sides of the harness. Thus it was impossible to get the straps crossed.

But these new chutes have the quick release buckles on both leg straps and rings on the harness. While crossing of the straps will, in no way, mar the structural capabilities of the chute for the bail out and subsequent descent there is another rather important item to be considered.

With the leg straps secured tightly around each upper thigh of the pilot, each leg receives 50 percent of the opening shock produced by the leg straps. This jolt thus divided is easily accepted physically and gratefully accepted psychologically.

However, with the straps crossed so that the left strap hooks to the right side and the right strap hooks to the left side we have an "X" marking the spot where 100 percent of the jolt of the leg straps will be taken. Furthermore, it is felt that this jolt will be taken neither easily nor gratefully, physically or psychologically.

Our solution to this problem was found by painting the right leg strap buckle and the right harness ring a bright red.

The pilot's motto may be "Red Right Returning" or "If you see the red before the flight, you can leap into bed when comes the night."

T. H. THAYER
Safety Officer
VF-102

Looks like a strapping good suggestion—Ed.

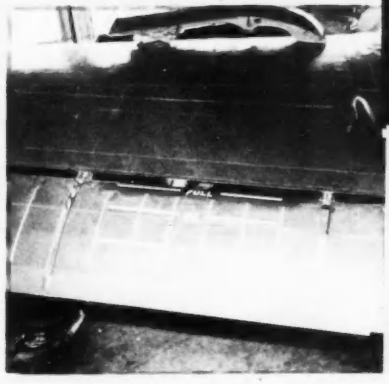
TO AVOID A FLAP-TRAP

Sir:

The enclosed pictures may be of interest to the various aviation safety officers in the field. The one picture is of special interest to all P2V squadrons, showing flap positions painted on the inboard and outboard flaps. The after station crewman is required to report 10 degrees both sides prior to takeoff, thus preventing the possibility of a split-flap condition. This is of prime importance in the takeoff following a touch-and-go landing.

The second picture shows our visual presentation program in VP-8 . . . The main board is 4' x 8' quarter-inch plywood painted insignia red with 2" white letters: AVIATION SAFETY. Below the board, hung on cup hooks, are 9 clipboards painted yellow with the various safety publications attached. I believe that by using this clipboard system, one pilot does not tie up all info and hence, more circulation. I always use the last page of the USAF "Flying Safety" magazine to attract attention to the board.

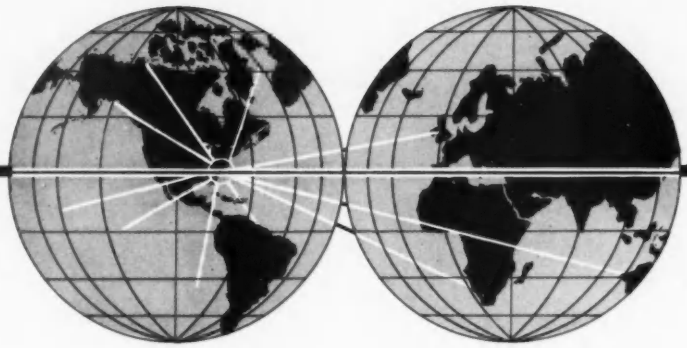
C. S. (Lars) LARSON, LCDR



Above:
Note the strategic location of VP-8's aviation safety board, right next to the java.

Left:
Flap markings on P2V makes split-flap detection easy. Such a procedure recently averted an accident at NAS Hutchinson then the scanner spotted a split-flap on a touch-and-go.

MONITOR



Erosion Problem—The air station has organized a continuing "Taxiway, runway, parking area clean-up crew." This permanent organization is required by a constant erosion condition which can only be eliminated by adequate sodding or surfacing of adjacent areas.—*FltAir Phil/NABS Phil.*

Line Crew Check Lists—Ready Reference Cards for all aircraft, indicating fuel requirements and other reservicing information, are being prepared by the maintenance department for use by the line crew personnel. This is to prevent inadvertent mis-servicing or overlooking items to be serviced in the many types of aircraft handled on the flight line.—*VR-32 Safety Meeting.*

Chase Pilot on GCA Runs—A committee was appointed to study the chase pilot responsibility for the safety of single piloted aircraft on practice GCA runs. Research will be conducted into the UHF over-ride of GCA transmissions. — *FAir Alameda-NABs 12ND.*

Angle-of-Attack Indicators—Kneepad cards are being prepared to display optimum angle-of-attack indications for various maneuvers (including landing approaches) for pilots flying aircraft having an angle-of-attack indicator.—*VR-32*

Transient Aircraft Reservicing—In multiplace aircraft, a crewman qualified in all respects to service the aircraft will be included as part of the crew for all RON flights. It will be the duty of this crewman, under the supervision of the pilot, to service the aircraft at all stops en route. In the case of single-piloted aircraft, the pilot must personally supervise the actual servicing of his aircraft. All pilots and operators of aircraft should be vigorously impressed with the necessity for personal attention to preflight details, especially during hours of darkness and/or inclement weather.—*Quonset Sub-Area Aviation Safety Council.*

Reviewing Aircrafts Ground Operations Accidents:—(1) taxi accidents are primarily the result of carelessness or negligence, whether it be the fault of the pilot, the taxi director, the tower operator or other ground personnel; (2) aircraft ground accidents are primarily caused through the unfamiliarity with ground equipment, inadequate indoctrination, poor supervision and lack of inspection.—*VR 32.*

Traffic Patterns and Civilian Planes—Increasing light plane and commercial traffic is being encountered over and in the vicinity of the Naval Air Station, causing a great number of near-miss accidents. As a solution, a letter is being prepared, outlining the traffic patterns at the Air Stations in the area. The letter will further recommend alternate routes which will avoid naval patterns and will describe the visibility and maneuvering problems involved in handling high performance naval aircraft, the hazards to the light plane involved, and the efforts currently being made by Navy to reduce the collision hazard. This letter is to be mailed to each light plane owner and airline in the area.—*FAir Alameda-NABs 12ND.*

Wheels Watch Briefings—It has been reported that some enlisted personnel were reporting to Operations to assume the wheels watch duty without proper instruction. Squadron Safety Officers were informed that the briefing and instruction of the wheels watch personnel was one of the responsibilities of the Squadron Safety Officer.—*FAir Alameda/NABs 12ND.*

EXCERPTS FROM SOME OF THE NAVY'S 88 SAFETY COUNCILS THROUGHOUT THE WORLD, WHO PROVIDE LOCAL LEADERSHIP AND EMPHASIS TO THE NAVAL AVIATION SAFETY PROGRAM.

Gear Adrift in SNB Cockpit—A common practice among pilots in SNB aircraft could lead to an accident—the practice of keeping navigation kits, charts, etc., on the deck between the pilots' seats during takeoffs and landings. In one known case, one of the handles on a briefcase became lodged in the elevator trim tab wheel mechanism. The council recommended that navigation kits and other loose gear be placed or secured in such a manner as to prevent recurrences.—*NATechTraCom.*

Relative Motion Problem—A landing accident occurred on an angled deck carrier when the pilot touched down on a heading slightly left of the axis of the angled deck. The constant runout arresting gear allowed the aircraft to continue into the port catwalk. It was pointed out that pilots must remain aware that the landing area on an angle deck is moving slowly from left to right. A landing which is not along the centerline combined with arresting gear allows the aircraft to continue in the direction in which it lands.—*FAir-Alameda, NABs 12ND.*

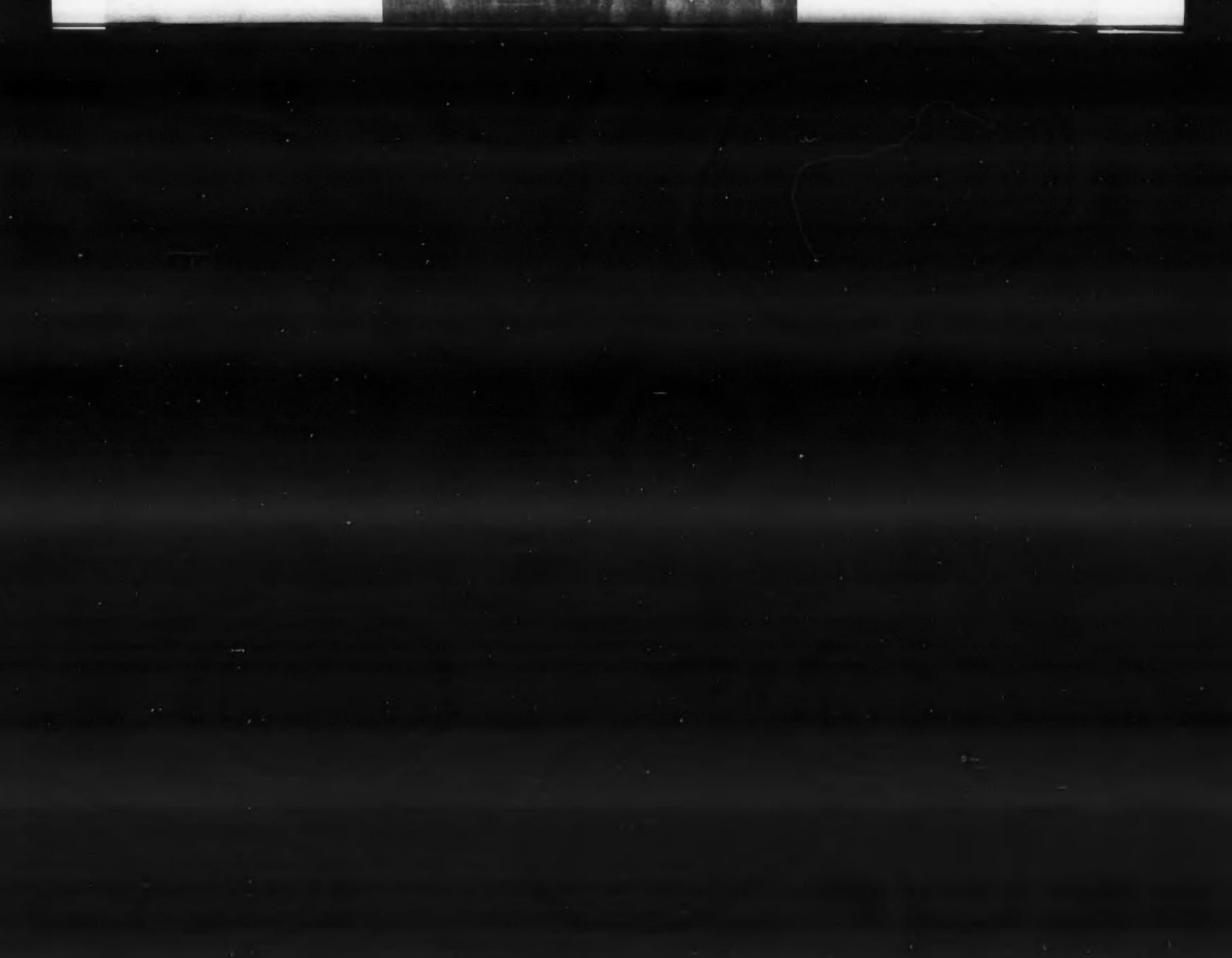
Safety Suggestion Box—VR-31 has established a "safety suggestion box" in their readyrooms for the purpose of reviewing anonymous questions and problems concerning safety of flight and operating procedures. Answers to these inquiries are given to all pilots' meetings by lecture and/or training films. The headquarters Safety Council considers the idea to be an excellent method of collecting operating problems as they confront pilots, and before they are forgotten. This system also provides a means of promulgating standardized and authoritative answers to all pilots. A frequent problem confronting any safety board is an adequate means of getting "the word" to all hands. The headquarters council recommends this system to all unit Safety Officers.—*FLogWingsLant/Cont.*

Taxi Directors—Taxi directors should not walk backwards while directing aircraft, but should station themselves in a spot where they are easily seen and can "pass" the aircraft to the next director. A pilot blinded by the sun while taxiing damaged a parked aircraft. All pilots are reminded that taxi of aircraft must be accomplished with caution. In any situation where the taxi director is lost from view of the pilot cannot visually check the progress of his aircraft, it is mandatory that the aircraft be stopped. Further, until such assistance arrives to safely move the aircraft, no movement of the plane shall be attempted.—*VR-24 Safety Board.*

Red Label Cargo—In a recent instance, red label cargo (gas samples) were transported in an unauthorized manner. The gas samples had been improperly packaged and inadequately marked and had been stowed with U.S. Mail. This can become a very serious in-flight fire hazard. All plane commanders must be informed whenever red label cargo is to be transported and must insure proper and safe stowage within the aircraft.—*VR-24 Safety Board.*

Transition Training Flight Emergency—An incident occurred involving a relatively inexperienced pilot who inadvertently actuated the wrong lever when faced with an emergency. The pilot was flying an F9F-5 but had also been transitioning in F2H-3 aircraft. The cause of the accident was deemed to be his confusion between the two aircraft. It is recommended that inexperienced pilots be restricted to one type of aircraft at a time.—*FAir-Alameda, NABs 12ND.*

Release of the latest Naval Aviation Safety Center study on the emergency use of the ejection seat, and the new doctrine of OpNav inst. 3750.12, coupled with our increasing number of supersonic aircraft, calls for this down-to-earth roundup of ejection facts and figures.



Curtain Call

BACK in 1951, the period July to December to be exact, the Navy's ejection rate from jet aircraft was .4 for every 10,000 jet hours flown.

The same six-month period for 1955 shows that the ejection rate has doubled.

As a result of the persistent upward trend, a study of ejections by the Aviation Safety Center notes that a steady mounting of the frequency of ejections can be expected in the future. But the increase is not necessarily alarming.

Why The Increase?

This increase in the number of ejections will probably result from a combination of the high number of jet hours flown, the newer high performance aircraft in fleet usage, and the "guide lines for jet aircraft in emergencies" as laid down by OpNav 3750.12.

The guide lines in 3750.12 are important to every pilot who flys, or expects to fly, a jet aircraft. With few exceptions, a use of the "shoot seat" is urged in flameouts, where relights are not successful, or in other emergency situations.

In general the exceptions are; where a pilot has currently dem-

Please turn page

onstrated his ability to shoot a flameout approach in the type aircraft he is flying, and where he can land on a runway (with suitable approach area) during daylight hours in clear weather.

This present emphasis on ejections makes review of the ejection seat record timely. The NASC Ejection and Bailout Study includes the period from July 1950 to December 1955 and all conclusions and recommendations are based on equipment in use throughout that period. Some past problems (the report notes) will be solved by equipment now coming into use.

Other problems however, do not yet have operational solutions; chief of these are the effects of high speed on ejections.

For the first time the subject of parachute landings was included in a study of ejections. The three major ways in which injuries are sustained during ejections are: (a) upon landing, (b) by the forces involved in ejecting the seat and pilot and (c) by the shock produced by the opening parachute. Of these three, the greatest number of injuries occur during the landing phases. This was also true in cases where pilots bailed out.

Selected Cases Studied

A comparison of injuries was made by using the past experiences of a group of naval parachute rigger trainees who had training, but no previous jumps, as a "trained" group.

An "untrained" group was selected from men who had made an operational bailout, but had no training. The variables, such as altitude, aircraft speed, terrain and wind speed, were controlled by eliminating men from the operational bailout group until the jump conditions for the two groups presented no striking differences.

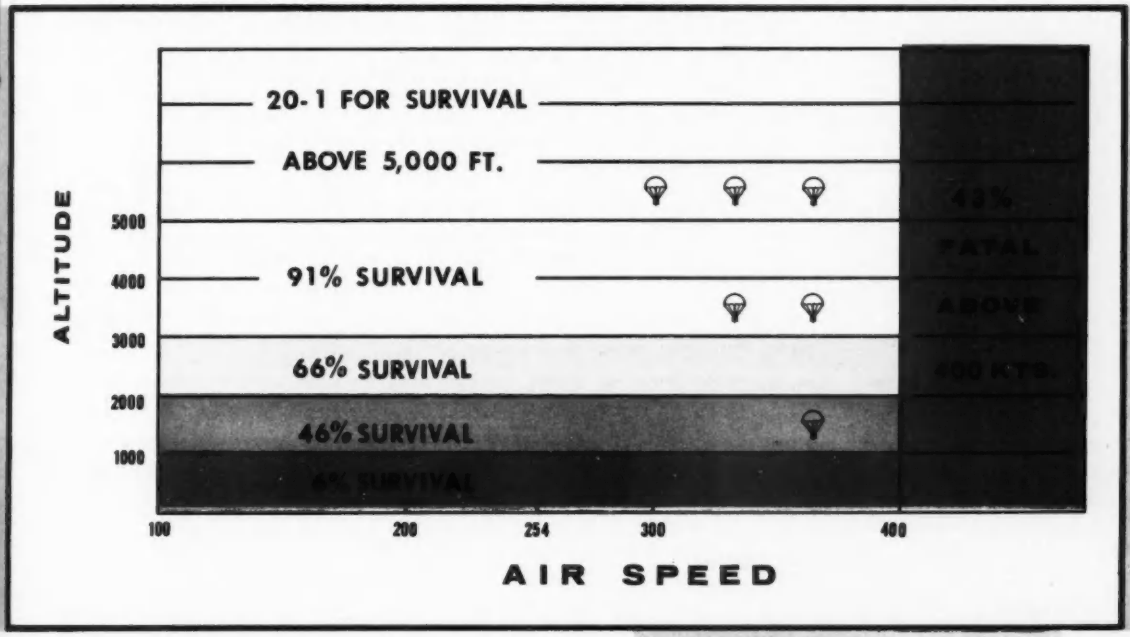
Of significance was the fact that injury rates for the trained group were far less than those for operational bailouts. A statistical comparison indicates that the difference in the number of injuries between the two groups is far beyond that which could be accounted for by chance.

Training Lacking, Training Needed

"This leaves no room for doubt," the report says, "that training in the proper bailout and parachuting techniques is the one (controllable) variable that is a major cause of the difference in injuries between the two groups, and that training in the proper techniques would reduce injuries significantly among the operational bailouts."

It was recommended that all flying personnel be given periodic training in parachute handling, escape techniques and landing

The odds for successful ejection at various altitudes and speeds are illustrated here. By making the decision to eject earlier, aviators can improve the odds. Perhaps more pre-emergency planning on the part of individual aviators as well as additonal squadron training and doctrine is called for. Of interest also in improving your survival odds is the aircraft-attitude-at-ejection chart on the subsequent page of this article.



The greatest number of injuries resulting from ejections comes from the parachute landing. More adequate and regular training in this maneuver was recommended.

procedures. This could perhaps be included in a package training program, accomplished at the time of such annual training as low pressure chamber.

In the matter of speed and altitude, the ejection record points

Cont. next page

out limitations in the present ejection equipment.

The efficiency of the non-automatic ejection equipment diminishes rapidly below 5000 feet and at 3000 feet the odds shift definitely toward a 50-50 chance for survival. Below 1000 feet all ejections have resulted in fatalities, with the exception of a freak accident in which the pilot ejected on the ground and managed to survive the impact with the ground.

Increased employment of automatic ejection equipment is expected to lower the present minimum safe ejection altitude as well as increase the percentage for survival in the altitudes between 1000 and 5000 feet.

Slow Down If Possible

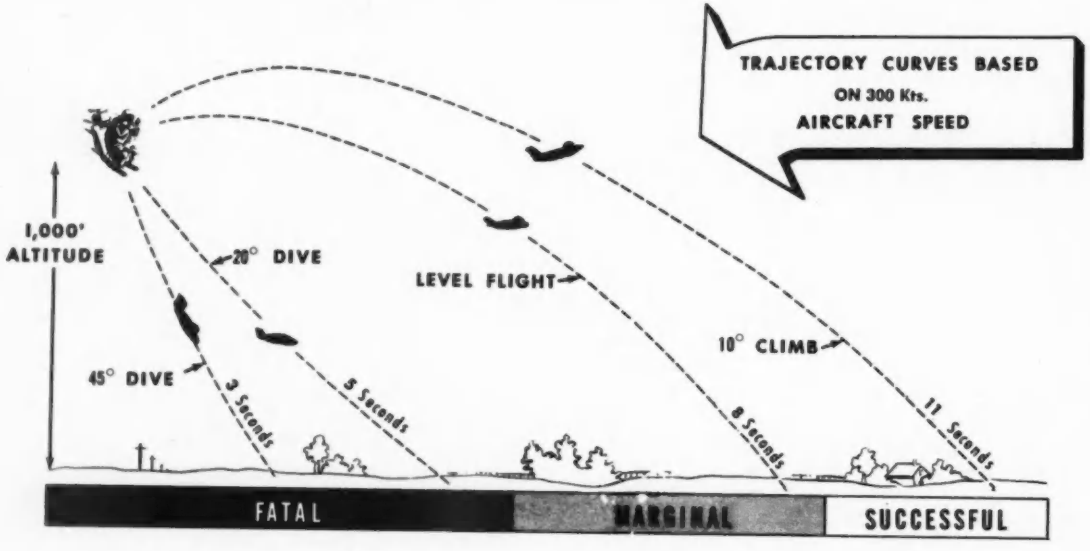
Speed too, has a bearing on the chances for a successful ejection. At 400 knots and above there is an increase in the percentage of ejections which result in fatal injuries.

However, the 400-knot figure is not a sharp demarcation line where 390 knots is "safe" and 410 knots fatal; 400 knots was selected as a so-called "critical pivotal speed" because of the sharp change in survival odds at that point.

A pilot's chances of escaping fatal injuries are 13 to 1 when ejecting at slower than 400 knots. Above 400 knots the odds drop to 2.3 to 1. Mach .7 appears to be the beginning of the critical zone for safe ejection. Over half of the ejections ended in fatalities at speeds above .7.

Fortunately, the average aircraft speed at ejections is listed at 254 knots. According to bare statistics, only 21 out of 160 ejections happened at 400 knots

Note the advantage of the nose-up attitude in increasing your free-fall time to the ground from 1,000'—giving more time for successful chute deployment! When the aircraft is under control, excess speed above stalling should be converted to additional altitude. (See, "When You Gotta' Go", January 1957 *Approach*, page 32.)



or over. There were more than 160 ejections but the aircraft speed either was not listed in the accident report or was unknown. Of the 21 ejections over 400 knots, 10 were between 500 to 550 knots and 50 percent were fatalities.

Injuries By Ejection Forces

The second highest injury-producing phase (the first being the parachute phase covered earlier) is the forces involved in ejecting the seat and pilot.

This phase caused 30 percent of ejection injuries though no fatalities were attributed to this source. Most of the injuries involved the back and neck.

Third major cause of ejection injuries has been the opening shock of the parachute which which accounted for 19 percent.

Among the people who bailed out, chute shock caused an equal percentage of injuries. There were no fatal injuries resulting from this latter cause.

What Are The Odds?

Despite an understandable concern regarding the chances of being injured during one of the ejection phases, the tabulated results of 207 ejections offer considerable reassurance.

For example, although only 16 percent of the pilots received no injuries, admittedly a small group, when there is added the 47 percent who received minor injury, the resulting total of 63 percent receiving minor or no injuries presents a more heartening prospect.

An additional 14 percent were seriously injured, but *only 2 pilots of the 207* were critically injured as a result of ejecting.

For the pilot, whose decision it must be to "ride it down" or to eject, OpNav 3750.12 offers additional information which reflects even more recent ejection experience. Paragraph 3 of that Instruction reports that "The following experiences resulted from engine failure in Navy jet aircraft from July 1953 through 1956: 10 (28%) out of 36 water ditching were fatal; 11 (19%) out of 57 flameout landings on unprepared land surfaces were fatal. Of 136 attempts to shoot flameout landings on a runway, 68 resulted in no damage and 68 resulted in accidents, 5 of which were fatal. Of 33 ejections following an engine flameout, only 1 was fatal."

Copies of the complete ejection report are being distributed to flight surgeons and other concerned personnel. Additional copies are available on request from the Director, Naval Aviation Safety Center, NAS Norfolk, 11, Va. ●

▶ The high speeds now possible in the Navy's latest fighters outstrip present pilot's equipment. Until means to correct this become operational, cut your speed prior to ejection as much as control and altitude conditions permit.

◀ At low, critical altitudes, the time-for-the-chute-to-function-advantages of getting into a level flight or nose-up attitude are—like the candy with the hole—truly lifesavers.

DEADSTICK IN AD

"I departed Norfolk in an AD-5 with two passengers for Edenton, N.C., where the ceiling was reported at 600 feet, two miles visibility with heavy rain. The ceiling at Norfolk at takeoff was about 1800 feet with light rain. My clearance was IFR with Norfolk directing me under positive radar control.

"As the flight progressed the weather increased in intensity with heavy rain reducing visibility to the point where I couldn't see the wing-tips at times. After about 26 minutes flying, Norfolk control told me I was cleared at 4000 feet to the Edenton low frequency homer. Rain was extremely heavy and it was nearly dark.

"At this point I was startled by a silence and noticed the manifold pressure fall off to 18 inches, followed by a rapid loss of oil pressure. Movement of the throttle had no effect. I told the rear seat passengers to standby for bailout and requested immediate GCA from Edenton tower. After crossing the homer I told the tower to forget the GCA as I would not have time to change channels. I continued the glide away from the homer intending to glide down to 2000 feet at which point I would abandon the plane if I could not see the surface.

"As I passed 3000 feet I hit a hole in the clouds and could see water through the rain and haze. After steepening my glide and reversing course I could then see the edge of the field.

"When I saw I could make the runway I lowered wheels and flaps and landed, securing the engine on the rollout. I waited in the aircraft for a tow and noticed that the far side of the field was obscured by low clouds and heavy rain and that the only light spot in sight was the one through which I had approached the field. Mark another one up for lady luck.

"A broken oil line was found along with the loss of nearly all engine oil. No other failure was located so it is assumed that loss of engine oil made made the manifold pressure regulator inoperative, accounting for the loss of power."

ILLUSION CONFUSION

The letdown leg of the Honolulu range passes to the right of Barbers Point, directly over Ewa Beach, to the station and then on to Hickam and Honolulu International.

The lights on the streets in Ewa Beach are approximately 300 feet apart (one city block) and extend about one mile. Under minimum weather conditions and poor radio reception this could easily cause confusion.

HASTY FLIGHT PLAN

"Departing from El Paso in an S2F while on a training flight west, the other student and myself were in a hurry to file and the inflight log was copied from a log we had figured out about three days previous. We had not checked it against the Radio Facility Charts however.

"According to what we had copied down our highest minimum en route altitude for an IFR flight plan was 12,000 feet between ELP and Tuscon with 8000 feet from there on to the coast. We had portable oxygen and were fat. Upon reaching Tuscon we asked for and received 8000 feet.

"About 10 minutes out of Thermal on Victor 64 the instructor checked the RadFac charts and noticed that the other student and myself had not copied the minimum altitudes quite correctly. In fact we had a 4000-foot error as the minimum altitude was 12,000 feet between Thermal and Perris Intersection.

"If we had been actual IFR and no one had taken the trouble to check the RadFacs we might be on the side of one of those mountains right now."

SOUND OFF!

"I was standing on the line at K-3 discussing the current problems with my engineering officer, when I observed an HO3S Rescue helicopter preparing to take off on a routine standby. I checked the time to find that I could spare 30 minutes before the staff briefing, so I motioned to the pilot to wait until I got aboard. He did, and away we went. I later discovered that the helicopter had not flown for a few days, that this was the first flight for the pilot in this area, and that the pilot had been previously warned that the engine had a weak mag and had been cutting out occasionally.

"We flew along the beach and then inland where I observed some high tension lines on steel towers running into the local town. They were of particular interest to me at the time as I had flown in the area for almost nine months in jets and had not observed them before. The pilot flew over them in a wide arc, and landed in the river bottom heading toward the power lines. Korean children began running toward the plane, and he took off quickly over them heading for the power lines. I later found out that he was checking the mags on the landing, and then listening to the engine after the takeoff from the river bottom.

"Not knowing this, the thought ran through my mind, 'Does he see them or doesn't he?', and I would peer around the pilot to see where he was looking as the helicopter flies in a nose-low attitude. I would again look up at the cables, and the answer was quick in coming to me in my mind, Certainly he does! They are as plain as the nose on your face!

"Again the same question presented itself when it appeared that the pilot still did not observe the cables, and a glimpse at the pilot's head would bring the same answer as before. On the third occasion I knew that if he did see them by now it still would be too late, but I picked up the microphone and called, 'Cables dead ahead.' It gave the pilot enough warning to pick up the nose of the helicopter which subsequently proved to be enough to save my life when the top of the 'copter was severed by the cables, but not enough to avoid a crash. We flew into them at about 40 knots with a resounding crunch, and subsequently if not immediately crashed into the river bottom. Fortunately, it did not burn and no one was killed, but three men were badly injured and a helicopter was a strike which could have been avoided had I originally said, 'Cables dead ahead' when I first observed the potential crash.

"The moral to this story is not, 'When you see cables ahead when riding in a helicopter, sound off,' but rather when you see an imminent accident regardless of the circumstances, SOUND OFF!!"

anymouse

and his hairy tales

CABLEGRAM

This might be of interest under the "Murphy's Law" type of thing:

Twice in the last six months this squadron has attempted to fly aircraft with an elevator cable off of a bellcrank. Once we were successful—but it took 150 kts to get the aircraft airborne. (Good thing it was a cool day). The other time the pilot caught the situation prior to takeoff.

On both occasions the error was the fault of experienced, dependable maintenance personnel and on both occasions the maintenance people were at a loss to explain this situation.

This squadron has adopted the policy of checking the reels and bellcranks while the cables are in motion. Previously, these were checked while in a static condition.

Please see next Anymouse.—Headmouse

SAME SONG

While taxiing out on a 4-plane bombing hop the controls of an F9F were checked several times and all seemed to be working well. After a 100 percent power takeoff, the elevators were checked again and they started to bind and were hard to move. After several cycles the stick freed considerably and after a visual check the elevator was seen not to be working. After taxiing back to the line it was ascertained—by looking in the port oxygen door—that the elevator cable had jumped the track.

The previous night the tail had been pulled and the cables were not replaced properly. I recommend in the future a more thorough check of the aircraft—after having the tail pulled.

BIG MISTAKE

"The first leg of my cross-country flight in an F3D was normal except for a fire warning light and inoperative UHF during the penetration to my destination. A short was found in the fire warning system and the IFF and UHF was repaired. I had five channels working.

"I accepted the aircraft for my return flight with the radio not up to par and this turned out to be my biggest mistake.

"Taking off at 2050 I asked for GCI surveillance during the flight. They gladly complied and I hit my first two checkpoints on time and on the good side of my "howgozit."

"Then everything happened.

"As I turned onto my new heading the IFF went out. Then channel 10 went out with channel 4 cutting out. Here I wrongly assumed that since my first two checkpoints were okay, all the rest would be the same. Flying preplanned headings I passed a city which I assumed was the one I was looking for. By this time my low freq was picking up nothing but static as I was proceeding toward an area of clouds and distant thunderstorms.

"At my ETA I called home base on guard channel, the only one working. No answer. Well I'm not in bad shape, I thought—3000 pounds left and a D/F steer will get me down.

"I raised a tower and commenced flying the heading that was given me. Forty-five minutes later, over a solid overcast, I lost contact with the station. I didn't feel so good. One engine was shut down to save gas and I called for an emergency steer from any station.

"Cecil tower (bless them) came up and gave me a steer which reversed my course, heading me back to shore. Yes, I found that I had been going out into the cold cruel Atlantic.

"I steered the headings Cecil gave me and just as I crossed the coastline with the lights of Jax in view, my left engine flamed out. I set up a glide for the nearest lighted field and reached the initial point with 7000 feet. Made a normal flameout approach and landed safely at Imson airport, Jacksonville. Time airborne, 3.6 hours.

"Here are a few recommendations from a far wiser and more grey-headed pilot: Don't file or fly IFR unless the radios check out perfectly, if VFR with radio failure, remain VFR and land at the nearest field. Be suspicious of forecast winds. Mine were 260 degrees at 30 knots, but they checked out at 300 at 70 to 100 knots! Check D/F steers with other stations and plot them yourself on a chart if possible. Don't leave your altitude until you are positively sure of your position."

Anymouse reports are submitted by Naval and Marine Corps aviation personnel who have had hairy or unsafe flight experiences. As the name indicates these reports need not be signed. The purpose of Anymouse Reports is to help prevent or overcome dangerous situations. Forms for writing Anymouse Reports are available in ready rooms and line shacks. All reports are considered for appropriate action. Send reports to the Naval Aviation Safety Center, NAS, Norfolk 11, Va.

WHEWH!

"I was only a spectator and was not involved in the incident related here. The details are forwarded in hopes that they will be of value to the Safety Center.

"At about 0800 an R5D landed. The field was under such visibility conditions that a crash vehicle was necessary to direct the R5D to the line.

"Led by the crash vehicle, the aircraft made a 180-degree turn back down the duty runway.

"A TV-2, waiting for an instrument, GCA-monitored climbout, was cleared to taxi into position and hold. The TV-2 pilot misunderstood the instruction and took this to mean he was cleared for takeoff.

"On the takeoff run and just before becoming airborne, the TV passed close to the left of the crash vehicle and *under* the left wing of the R5D! Visibility at this time was such that the jet didn't sight the crash vehicle nor the R5D until upon them."

Whoosh! Who can legislate against this sort of stunt? We do know, however, of pilots who repeat back the more important tower clearances such as, "Roger, understand cleared for takeoff," or "understand cleared to land."—Ed.

BANJO BINGO

"I was launched into the pattern along with another *Banshee* and proceeded to make five or six foul-deck passes while the ship respotted the deck. Finally I was cleared for touch-and-go landings, and after the second one I was told to drop my hook and was trapped. By this time I was near bingo fuel, but when I was taxied onto the catapult I decided to go along with the program and try for that sixth arrested landing which I needed for qualification. This decision almost cost me my life, or something.

"After slightly overshooting the spot on the cat I had to be pushed back. Then completing my checkoff list and tightening shoulder harness and seat belt, I gave the catapult officer the high sign and was promptly on my way.

"This is where the trouble started. The *Banshee* went down the deck as it should but I went up and almost out of the open canopy. My left hand was yanked from the throttles and catapult grip and I remember hanging onto the stick with my right hand while my head was well above the top of the canopy. Incidentally, my goggles blew off at this point.

"When the catapult turned me loose I settled back to a respectable position and recovered from a nose-high attitude. As I was turning downwind for that much desired sixth trap landing, and incidentally below my bingo for return to the beach, the ship decided your 'ole Dad' should go home. Naturally, my first thought was which way is home and how far? Normally, I would have known instantly but since I was still probably a little shook from the catapult shot, I flew downwind for about 30 seconds while I was cleaning up the plane and orienting myself.

"While I was turning to a heading to shore, the ship had me switch to CIC and I was given a steer of 265 degrees, 35 miles. At

this point, I was down to 900 pounds and informed ship of same. I climbed to 5000 feet and continued to base at 285 knots, twin engine.

"About 15 miles out I called for an emergency straight-in approach and touched down with 200 pounds fuel remaining. As I was taxiing in, both engines flamed out about two feet short of the chocks.

"The moral of this story is: (a) Don't mickeymouse around with bingo fuel. Either go home with a safe margin on the high side of your bingo or stay aboard; (b) Know your bearing and distance to base before every launch and write them down on your kneepad.

"As to the catapult shot, maintenance checked the seat and found the third compressor ring was not properly seated which prevented the dogs from properly locking the seat."

Anymouse

Why a twin-engine return?—Headmouse

headmouse

TOTALITARIANISM?

Dear Headmouse:

In the November *Approach*, Anymouse tells of a close one because the switch in the F2H-4 is spring-loaded to the TOTAL position thus making it possible to flame out with 2000 pounds showing on the gage. I know of at least one demolished F2H-4 and injured pilot which resulted from this booby trap.

I know of two squadrons in which a standing work order specified exchanging the leads on this switch so that the gage showed the amount of fuel in the internal tanks unless the switch was held to the TOTAL position against spring pressure. I know BuAer and McDonnell were advised of this booby trap five years ago. When will a service change be cut? Meanwhile, why not advise F2H-4 squadrons to switch leads?

ANYMOUSE

No action is underway to change the wiring to the selector currently installed as a part of the fuel quantity gaging system in these airplanes. The present system conforms with existing policy to give the pilot a reading of total fuel aboard.

Trouble has resulted chiefly from malfunctions caused by faulty contacts at the wingtip electrical connector. Care must be exercised during installation of the tip tanks. An actual check of the system should be made at this time.

Pilots in airplanes having tip tanks should understand the gaging system and make periodic checks of their internal fuel state by momentary use of the selector switch.

BuAer is now giving consideration to the possible installation in F2H airplanes of a low fuel level warning light, independent of the gaging system.

Very resp'y,
Headmouse

TIPSY'—TURVY

This Anymouse, although somewhat incident to flight, is primarily concerned with an aero-medical aspect of aviation. He says, "please realize I am in no way experienced in the inner workings of the human mind, and am writing this strictly as a layman. . .

"For quite some time now, I've wondered about the effect that self-satisfaction and elation have on a pilot while he is engaged in flight. Many articles have been written concerning effects of emotions, but these have dealt primarily with the less enjoyable ones, such as worry, doubtfulness and fear:

"What about the other side of the picture, such as satisfaction, happiness and pride? (I purposely have shied clear of overconfidence as I don't believe it enters this condition)..."

ANYMOUSE

Anything that takes your mind off the business of flying can lead to an accident.

The most satisfactory method of discussing emotions has been to translate them into behavior, or performance. This is accomplished by defining any emotion as a "disorganization of behavior."

Pleasant emotions such as happiness result in a disorganization of behavior as well as the unpleasant ones, such as anger.

As an accident-causer, the degree of emotion can be more important than the type. Each emotion has a dimension of quantity, thus the amount of disorganization depends on the degree of the emotion that the person is experiencing.

Take the infatuated gent (young or old) and the old saw "love is blind." Seems the poor fellow cannot even "see." Actually he "sees" all right, but his emotions prevent him from properly analyzing what his eyes report.

Anymouse included in his letter an example of how emotions tripped him up. "As I recall," *he said,* "this was the first launch of the day. The aircraft involved was a *Banshee* which had been assigned to me and had my name painted on it. This was the first aircraft that was so painted and I was proud of it.

"After a successful flight, we returned to the carrier and were given a 'charlie.' The letdown, breakup and downwind leg were normal in all respects. My pass was a 'roger' and a cut was received. The landing was normal. Why didn't I test my brakes during the rollback after being arrested? I know that I normally did test them, for some reason, this time I didn't. As I came out of the gear and was headed towards the parking area, my starboard brake failed and I went over the side. The rest of the story is of no importance in this case. My personal feelings at the time were of satisfaction, pride and happiness."

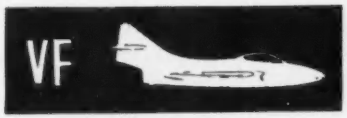
Anymouse asks, "Could this (accident) be a result of self-satisfaction and pride?"

Yes, because of low motivation. The psychologist says you must have some stimulus to make you move at all, and not sit like a bump on a frog on a log.

Self-satisfaction, psychologically, would be a state in which the individual has a feeling of well-being, that all is right with the world. It could easily result from a series of pleasant emotions resulting from a corresponding chain of successes.

Now that the energizing emotions have departed, this state of "well-being" can be one of low motivation. The lowered motivation could result in loss of alertness and concern for dangerous responses and might result in an accident.

Very resp'y
Headmouse



REPEAT PERFORMANCE — Once upon a time the pilot of an F9F-6 ran off the end of an 8000-foot runway and blew a tire when his right gear dropped into a hole in the overrun.

Two days later the same pilot, riding the same plane, was number 4 in a flight of four. The wind was calm as the flight returned from a tactical hop and broke over the field for landing. Numbers 1, 2, and 3 touched down on the 8000-foot strip without incident.

While number 3 was rolling toward the end of the runway for a turnoff onto the taxi strip, num-4 came barreling over the fence without flaps. He overtook and passed number 3.

The number 3 man said, "I heard the tower say '(No. 4) you're hot, drop your hook, the barrier is up.' My aircraft was slowed down enough by then that I raised the flaps and started my right turn off the runway.

"At this moment I glanced back over my left shoulder and saw No. 4 proceeding at about 40-50 knots down the runway with the right brake burning badly (yellow fire). The plane

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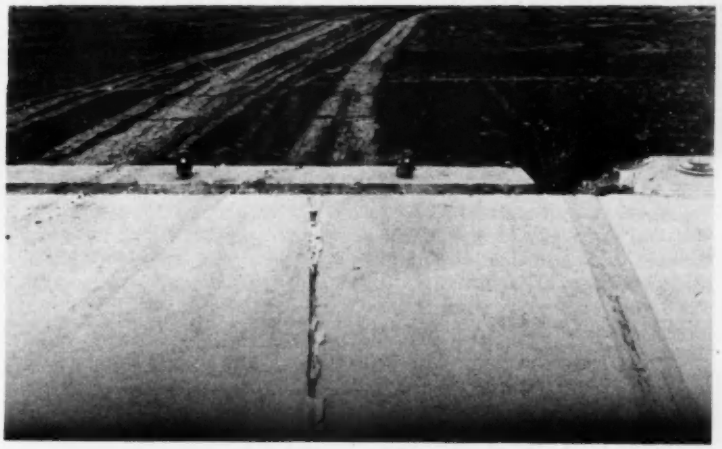


The first time the pilot ran off the runway the only damage was a blown tire when his right gear hit a hole in the overrun. The second time he did it, two days later, he went into the drink.

Truth and Consequences

A DIGEST OF SIGNIFICANT AIRCRAFT ACCIDENTS

Truth and Consequences

A DIGEST OF SIGNIFICANT AIRCRAFT ACCIDENTS

continued

had veered slightly to the right and continued off the end of the runway, through the fence and into the water." Number 3 shut down and ran over to number 4's plane. By the time he got there the pilot was out of the cockpit and just stumbling out of the water.

Several facts brought out by the accident board merit attention before considering the pilot's statement.

First, three witnesses attested to the fact that the flaps were not extended during the final 1000 feet of approach and initial landing roll. Also, the board felt that in a no-flap condition, with 1700-1800 pounds of fuel abroad, the aircraft must have touched down at about 150 knots and with a high power setting in order for control to have been maintained.

"Turn to base leg was made normally at 1000 feet and 150 knots," stated the number 4 man. The approach was normal except that in coming into the straightaway, airspeed was 140 knots. A quick glance at the flap indicator showed flaps UP. The handle was DOWN and I quickly recycled it, making sure it was homed in the down position. I did not check further to see if they came down again because I turned my attention to the landing.

"The aircraft was slowing down nicely and under full control. About halfway down the runway, I heard the tower notify me that the arresting wire was up. I put my hand on the hook handle and checked my slowdown before pulling it. Everything seemed normal so it was decided the hook would not be necessary.

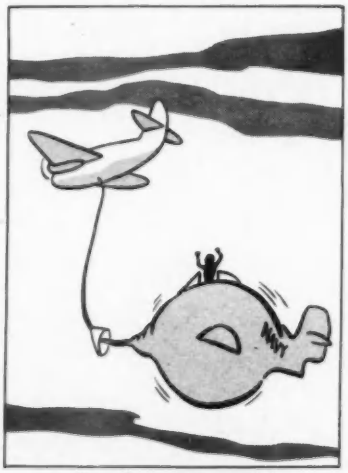
"With about 1000 feet of runway remaining, brake pressure became increasingly less effective and the airplane ceased decelerating . . . Full brake pressure on both pedals was applied at full strength, braced against the back of the seat, but with no effect. . ."

When raised from the water, the flaps were observed to be about one-half down with the cockpit flap control in the down position.

In an analysis of the accident, the board considered that a waveoff should have been executed during the approach when the pilot realized that his flaps were not down.

The underlying cause of the pilot's failure to effect a waveoff was attributed to the human desire to "make it" on the first pass, and to overly concentrated attention devoted to the accomplishment of the actual landing.

The Light Approach



"Enough, dammit, enough!"

TANGLE WITH THE ANGLE—On a fall afternoon an F9F-5 piloted by a lieutenant became airborne as the number 4 man of the first division of a 12-plane flight engaged in an air show.

After completion of the demonstration the lieutenant assumed the number 3 position (the plane he replaced had UHF failure).

The flight had been briefed to recover at their home field by six-plane element low visibility approaches or section GCA depending on the visibility at the field. The lead division arrived over the low frequency range and the lead section departed the range on a heading to the field.

After arriving approximately over the low station, the lieutenant continued on toward the field and requested permission to enter downwind for the duty runway as he had the field in sight. Visibility was reported at two miles at the time. The section then made an extremely steep turn to the right and another steep turn to the left in an attempt to set up a 180-degree position.

The second plane dropped back a short distance and attempted to take landing interval. The lieutenant had gear, flaps and divebrakes down at the abeam position which was extremely close and low (estimated 500 feet altitude). The approach was continued with a high degree of bank and the second aircraft executed a voluntary waveoff at the 90-degree spot.

The lieutenant continued to the 45-degree position with a bank of 60 to 70 degrees, slightly nose-high, until the aircraft stalled violently and struck the ground in a nose-low vertical bank to the left. Upon impact, the aircraft exploded and burned. The lieutenant was killed on impact.

After taxiing over the barricade the pilot lost traction on a wet deck and skidded with locked wheels.

SLIPPAGE — An F2H-4 pilot, whose carrier experience had been largely aboard angled-deck carriers with anti-skid decks, was launched on a day carqual mission from an axial-deck carrier. Following a normal arrested landing, the F2H-4 was taxied forward for another catapult launch.

After rolling over the barricade, at what was considered normal taxi speed by all witnesses, the pilot lost braking action and skidded into another aircraft which was spotted on the starboard cat. The pilot assumed a brake failure when the aircraft failed to slow down. In reality the wheels were locked from excessive pumping and resulted in loss of traction.

It was noted afterward that the flight deck was deceptively slick due to blowing spray from 50-knot wind. The deck was not coated with antiskid paint. One member of the board had made four landings during the period and although spray was noted to be blowing over the flight deck, there was no apparent loss of traction while taxiing.

According to the accident board the primary cause of this accident must be given as pilot error of judgment in that the pilot did not recognize the possible loss of braking action on a slightly wet, wooden deck.

Following the accident, the squadron skipper held a lecture period at which these points of interest were included:

Leaving the arresting gear is a more critical portion of the flight than is usually recognized. The pilot in the gear must be prompt in leaving it and getting across the barrier to avoid fouling the deck for the next aircraft. At the same time, he must keep his speed under control in order to prevent accidents such as this one. Inasmuch as the tendency to skid on different flights varies greatly with the wind and slickness of the deck, the most judicious throttle control and braking is necessary.

Pilots frequently exercise wrong technique by leaving a high power setting for too long after leaving the gear. It is essential that the power be reduced smartly after gaining sufficient speed to permit the aircraft to coast across the barricade.

WHERE'S CHARLIE?

At 1558 the F9F-2 towplane took off on a scheduled gunnery training flight. Immediately behind, in another *Panther*, AvCad Charlie, the tow escort, watched the first airplane with wary intentness.

This time, dadburnit, he didn't intend to lose sight of the airplane ahead. One chewing-out for joining up too slowly was enough. Charlie moved out on the runway and, still watching the towplane, added power and began his roll. Behind him, on the warmup spot, the instructor and another student were completing their preflight check.

Barreling down the runway, Charlie continued to keep the towplane in sight. Oh no, Buster, you don't get away from me this time! When the *Panther* seemed ready, Charlie hauled it off the deck. Then, after a moment he reached for the landing gear handle and gave it a tug. The T-handle on the lever wouldn't come out. Still visually locked on the towplane ahead, Charlie gave a couple more ineffectual yanks. Then he realized that he was still pretty low—about 50 feet—and wasn't climbing. While considering imparting this information to his instructor, Charlie jammed at the throttle, only to find it already up to the stop. Hmmmm. Then the F-9 began losing altitude and Charlie, with a final regretful glance at the towplane, lowered the nose and busied himself with the problem at hand.

The *Panther* sagged even lower and, as Charlie flared desperately, slammed down tail-first, sliding some 260 feet through low brush, shedding tiptanks and assorted components as it skidded along the deck. The reluctant landing gear was about the first thing to be sheared off.

Please turn page

Truth and Consequences
continued

When the plane stopped about a mile from the upwind end of the runway, Charlie tried to close the throttle, but it would come back only half way—the engine continued to run. Charlie cut the fuel master switch and watched the percent gage. The engine ran on. Charlie turned off various other switches. The engine roared magnificently.

Charlie then tried to get out, attempting to open the canopy with the emergency jettison lever —the canopy didn't budge. Charlie tried the pre-ejection lever, but probably didn't move it to full throw position, as the canopy remained firmly in place.

Understandably impatient with this lack of results obtained from normal systems provided, Charlie unstrapped himself, squirmed around, positioned his number 10s carefully, and kicked the bejabbers out of the canopy. Under this attack, the canopy loosened enough to enable Charlie to push it back. He then returned his attention to the throttle and the persistently roaring engine. Straining mightily, he forced the throttle back around the horn. The engine ran beautifully.

Charlie decided to leave the airplane.

From a safe distance, Charlie eyed the screeching beast with a mixture of respect and frustration. The *Panther* gave no indication of exploding, but howled on as contentedly as if mounted in a test stand. Charlie decided to try once more. He returned to the plane, where he switched the fuel selector switch, flipped the tiptank transfer switches (the tips were pretty well strewn along the crash-path of the airplane), and made other equally futile motions. The obstinate engine whined away like a sewing machine. Charlie again retreated to the bushes and pondered the matter.

Meanwhile, back at the air station . . . the tower had duly noted the takeoff of AvCad Charlie, after which attention had shifted to other traffic. On the holding ramp, the instructor completed his checkoff, moved into position and, with his wingman, took off to join the tow plane. He too, had not observed Charlie's airplane after it became airborne, and the instructor proceeded with a routine radio check on tactical frequency. Everyone checked in except, of course, Charlie, who failed to answer on any of several channels.

After a visual scan of the air and ground thereabouts, the instructor continued to the gunnery rendezvous area, still trying to make contact with the absent escort.

the instructor returned to base, alerting the tower to the need for an immediate search, which was begun about 1623.

WHEELS-UP

Edwards, L. L., AC1, NAAS Kingsville, 7 December 1956

An F9F-5 turned into final approach with the landing gear up, although due to a malfunction the gear indicators showed it down. Edwards, on duty in the control tower, ordered a waveoff and prevented the wheels-up landing.

Nelson, J. R., AC3, NAS Moffett Field, 12 December 1956

An F9F aircraft, number two in a flight cleared for landing, was observed by tower air controlman Nelson to be gear up in final; he ordered a waveoff by tower radio.

CPL W. D. Boone, NAAS Edenton, 7 December 1956

A wheels-up landing was prevented when Cpl Boone, control tower operator, alerted the pilot on base leg just after he reported "gear down and locked" that the gear was not down.

Carroll, R. P., AC3, NAS Moffett Field, 31 January 1957

An F9F, while making a simulated flameout approach, was observed by Carroll, tower controller, to have gear in up position over boundary of field. Waveoff was given by radio and fixed field flares.

CDR T. J. Wood; ENS M. H. Heitman; Wolfe, K. B., AC3, and Reger, N. M., AN, NAS Chincoteague, 11 December 1956

As an F3D turned into final with low fuel state and gear up, simultaneous warnings were broadcast by ENS Heitman operating the mobile ground control unit for pilotless aircraft, CDR Wood from his aircraft parked in the warm-up spot, Wolfe from the control tower, and Reger, at the end of the runway, gave waveoff signals with his flags and flares.

No Very's Pistol—No Radio . . N

Quoted from a dispatch of a save that didn't take place:

"Enlisted wheels watch posted starboard side approach end duty runway for right-hand traffic pattern observed aircraft approaching no wheels, gave waveoff with flags. Binoculars and two 16-inch fluorescent red flags were equipment of wheels watch. No radio or Very's pistol supplied. Pilot did not observe wheels watch. Tower personnel state waveoff given by radio. Tape transcription does not verify.

Meantime, the subject of the search had begun to shuffle a bit uncertainly when, after 45 minutes, the *Panther's* engine still bellowed defiantly. Charlie glowered unhappily at the stupid machine, then glanced up at the airplanes which moved overhead occasionally. He decided to use a smoke flare. No one saw the signal.

Despairing of anyone seeing him or the airplane, Charlie decided to walk home. Reaching a farmer's field, he walked along a fence until he spied a helicopter down at a far corner of the field. He loosed another smoke flare, but the chopper crew didn't see it either.

Thoroughly discouraged, Charlie started to walk back to the airplane—only to realize that he could no longer hear the engine. With no noise to home on, Charlie became a bit disoriented and settled down to wait in a cleared area. A searching helicopter found him here about an hour and a quarter after the original takeoff.

Along about the same time, one member of AvCad Charlie's flight spotted the downed airplane and a crash crew reached the scene at 1720—to find the *Panther* still roaring its lonely challenge. The crash crew were equally unsuccessful in shutting down the engine until proper tools were obtained.

Finally, at 1858, *three hours after the takeoff*, the squall of the turbine was choked into silence. The airplane was a strike, the fuselage having broken forward of the wingroot on impact, which had severed electrical lines and engine control linkage.

Among the factors considered as causes of the accident was the fact that on the last five flights prior to the final takeoff, the airplane was flown by an instructor on a cross-country. On his return he downed the airplane for four items (which were corrected), but neglected to mention that he had been unable to retract the landing gear, except with manual over-ride, on three takeoffs. As might be suspected, the engine received relatively little damage during the crash, and following minor repairs, was later installed and tested in another airframe where it performed in a completely normal manner.

Primary cause assigned: Pilot error. The pilot, apprehensively intent upon making a rapid join-up, either made a nose-high takeoff ("pulled" the aircraft off the deck) or after a normal takeoff, increased back pressure on the stick in order to climb before the airspeed had a chance to build up, or both—all effecting to put the airplane on the back side of the power-drag curve.

Reprints of an Approach *article (Feb. 1956) on the "backside" can be had—just write NASC for a copy of "Region of Reverse Commands."—Ed.* ●

SAVES

Box Score

Wheels-up Landings* (pilot-caused)	
Jan. 1-Mar. 19, 1956	14
Jan. 1-Mar. 19, 1957	5

*major accidents

Nath, J. T., AC1, and O'Quinn, P. E., AC3, NAAS Cabaniss, 30 November 1956

Two transient AD-6s called for landing instructions. Flight leader broke short, didn't check base and continued approach, gear up. O'Quinn, controlling traffic, gave waveoff over radio while Nath gave a red light. This was the first save for O'Quinn, fifth for Nath.

Renville, C. G., AC3, NAS Moffett, 9 November 1956

An F9F-8, number two in a flight of two, was cleared for landing. Both aircraft in flight reported gear down on base leg. As tower duty controller, Renville observed second aircraft with no wheels and gave waveoff by radio, at the same time ordering the field flares to be fired from the tower.

McMurtry, J. F., AT3, VS-21, 20 November 1956

During the hours of darkness, McMurtry on duty at the end of the runway noticed an AD approaching wheels-up. He fired remote flares and used red Aldis lamp to order waveoff.

Rosenau, E. C., AN, VA-86, 13 February 1956

The pilot of an F9F-6 making touch-and-go landings reported gear down and turned into final with the gear retracted. Rosenau fired two flares and the aircraft waved off.

MAJ. H. L. Holman NARF Spokane, 13 January 1957

A USAF F86D was in the landing pattern behind a Marine F9F. The F9F made a wide approach and the F86 pilot was so intent on complaining, over the radio, about the F9F fouling up the traffic pattern that the F86 pilot neglected to lower his wheels. He was given a waveoff by radio from Major Holman, runway watch officer.

Radio . . No Wheels—No Wonder!

"Investigation shows waveoff given over crash circuit instead of tower primary.

"Corrective action taken: Increased emphasis to all squadron pilots on use of landing checkoff list, rechecking gear handle and indicator after receiving landing clearance and observing runway wheels watch on each landing.

"Posting officer wheel watch equipped with radio and Very pistol supplementing present watch."

Admiral Arleigh A. Burke
Chief of Naval Operations
Department of the Navy
Washington 25, D. C.
Dear Admiral Burke:

I am writing to request your help on the near-miss problem. I know that you are well aware of the magnitude of this problem and the responsibility we all share in it.

I feel sure that the Navy, by constant emphasis of the importance of vigilance, can materially assist us in the prevention of near-miss incidents. The men who fly the planes are, of course, our front lines. I am convinced that beneficial results will be obtained if we can enlist the support of your organization in a program designed to bring forcefully to the attention of these airmen the necessity for constant vigilance and continuing awareness of this problem. I want to make it plain, however, that this letter is not intended as a criticism of the pilot group as a whole, but rather that it be an effort to emphasize an extremely important aspect of our operations under present conditions. I would also point out a letter will go to the scheduled air carriers, irregular air carriers, aviation organizations and other military services to insure that this message will reach all users of the airspace.

More specifically, I strongly urge that a definite program be established to insure that the following points are continually brought to the attention of appropriate personnel:

Vigilance—The concept of "see and be seen" is rapidly nearing obsolescence; there is as yet no substitute for maintaining a thorough watch for other air traffic at all times. Laxity, by crewmembers or inattention to duty cannot be tolerated under today's traffic density.

Crew Coordination—Training programs must stress the need for close teamwork of all flight crewmembers and should establish clear-cut areas of duty and responsibility.

VFR Flight—VFR flights must not be attempted in marginal weather conditions.

Adherence to Flight Plans and Established Procedure—Cutting corners or other deviations are not to be tolerated. Departures from flight plan or established procedures to save a minute result in ineffective traffic control.

Procedures and Regulations—Failure to adhere to regulations and procedures can endanger all flights in an area. Regulations and procedures must be thoroughly understood and rigidly adhered to in the interest of everyone's safety.

Position Reports—Pilots must keep abreast of their position and report it accurately as required. If a fix is missed or a definite position is not known, traffic control must be advised in order that they can plan accordingly.

Radio Transmissions—Radio discipline should be rigidly enforced. Transmissions must be clear; unnecessary conversations, eliminated.

Some of these points, might be considered so elementary in nature that they would hardly be worthy of mention. However, our analysis of various near-miss reports shows this to be unfounded. My own personal observation confirms my concern in the areas cited above.

While I realize fully that such a program as is outlined above is no panacea for the near-miss problem, I am confident that it will serve to lessen this hazard until some of the improvements we have under way become effective.

We, in Civil Aeronautics Administration, realize our obligations to the services and the public in this matter of near-miss incidents as well as in other aviation matters. We have a positive and constructive program under way to expand and improve our facilities which are vital to both civil and military aviation. We are strengthening and broadening our technical development program to give recognition to all forms of improvement that may aid the services and facilities the CAA renders to the aviation industry.

Working together, I am sure we can alleviate to a considerable extent the inherent danger in the near-miss hazard. I shall appreciate your cooperation in connection with this vital matter.

Sincerely yours,
/s/ JAMES T. PYLE
Acting Administrator of Civil Aeronautics

SEE and be SEEN

DEPARTMENT OF THE NAVY
Office of the Chief of Naval Operations
Washington 25, D. C.

in reply refer to
OP-53B1/dlg
Ser 1260P53
3 Jan 1957

Dear Mr. Pyle:

Your letter of 5 December 1956 in which you request the Navy's cooperation to alleviate the near-miss problem is very much appreciated.

The officers attached to the Aviation Safety Division of my staff, those serving with the Navy's Safety Councils throughout the world (88 of them) and with the Navy Aviation Safety Center at Norfolk, Virginia are constantly devoting every effort to stress the points you listed in your letter to reduce the probability of mid-air collisions. I am forwarding several items which indicate the method by which we are presenting the problem to our pilots and would appreciate your permission to have your letter printed in our aviation safety magazine, "Approach".

You may be assured that the Navy will continue to bring to the attention of all aviation personnel the necessity for constant vigilance and continuing awareness of situations leading to mid-air collisions.

Mr. James T. Pyle
Administrator
Civil Aeronautics Administration
Washington, D. C.

Encl:
(1) OPNAV Instruction 3750.10
(2) "Approach" magazine, September 1956
(3) "Approach" magazine, December 1956
(4) U. S. Naval Aviation Safety Center poster

Sincerely yours,

/s/ ARLEIGH BURKE
ADMIRAL, U.S. NAVY

Automatic Parachute Openers

How do these new automatic parachute releases work? What safety precautions do I need to know?—Here's the pitch, straight from the experts at the Naval Parachute Unit, El Centro.

At present, two different devices are being distributed; each is adaptable, with the proper accessories, for incorporation into either seat—or back type parachute assemblies.

The parachute releases provide fully automatic actuation of the parachute ripcord independently of the manual ripcord. However, the parachute can also be used in the conventional manner using the manual ripcord.

Both automatic releases are aneroid-controlled devices which release the parachute pack at, or below, a preset altitude after a 3-second time delay. The unit is assembled into the parachute pack according to procedures set forth in Bureau of Aeronautics Aviation Clothing and Survival Equipment Bulletins.

Description

A brief description of each device is as follows:

1. *Barometric release, Mk V,* Irving Air Chute Company. This unit is a mechanical device operated by a compressed spring which delivers an initial force of about 150 pounds to the power ripcord cable. Time delay is provided by means of a gear train escapement mechanism preset at 3 seconds.

The Mk V has a calibrated dial by means of which the release may be set to actuate and pull the parachute ripcord at altitudes of 5000, 10,000, 15,000, or 20,000 feet. Precaution must be taken to set the altitude in the exact manner detailed in the appropriate bulletin.

2. *The Automatic Release Actuators*—Part Numbers 1000A, or 1004, Master Specialties Company. This unit is a pyrotechnically-operated device wherein a cartridge provides the power for pulling the parachute ripcord and, by means of a time delay powder train incorporated in the cartridge, also furnishes the 3-second delay.

The Master Specialties Actuator aneroid setting for altitude must be made by an instrument technician with altitude chamber facilities available. The devices are currently preset by the contractor for 10,000 feet.

Operating Procedures

The installation, assembly and arming of automatic actuators in the parachutes will always be accomplished by qualified parachute riggers since special tools and equipment are required.

However, pilots, aircrewmen and plane captains should exercise care in handling of the completed parachute and actuator assembly and inspect to assure that the arming cable assembly terminal fitting is installed in the lap belt or ditching handle (A4D) fittings for proper automatic operation.

Upon completion of flight, care should be taken to prevent inadvertent operation of the actuator by snagging; also, the arming cable fitting must be removed from the lap belt, or ditching handle, before the parachute is removed from the cockpit for maintenance.

Safety Precautions

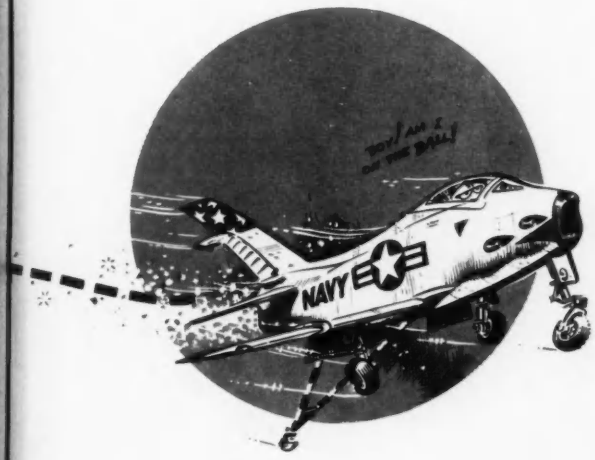
No specific safety precautions apply to either unit when it is properly assembled in the parachute pack, except those regarding handling as necessary to preclude inadvertent actuation.

If the arming wire is inadvertently pulled by personnel on the ground, no injuries to personnel will occur as the automatic release is entirely enclosed within the pack. Inadvertent opening of the parachute by use of the manual ripcord will leave either type of opener in the armed condition. Under these conditions, it is important to keep the arming wire in place in the actuator because operation of the opener without a "load" on the power ripcord may seriously damage the unit, and may cause failure of the barrel assembly, endangering nearby personnel.

In the event of inadvertent opening of a parachute by actuation of the manual ripcord, a qualified parachute rigger should be called to handle the equipment.

In the Master Specialties 1000 series opener rescue personnel should be particularly alert to avoid unnecessary handling of the automatic opener, the arming cable or the arming ring if there is any doubt that the cartridge has fired. ●

By J. M. Moore



Carrier Approach-

THERE is an old adage, written by Orville or Wilbur, which says that a pilot in a carrier approach should add 5 knots to the recommended approach speed for his wife, and an additional 5 knots for each child.

A long standing carrier pilot whom I know has a lovely wife and 11 children. This entitles him to make his carrier approach in an FJ-4, for instance, at 185 knots.

During a recent cruise in sweptwing fighters, however, his approach speeds were consistently between 125 and 130 knots. He realized that the old standard of 5 knots per child had to be modified for this reason: Modern carrier pilots have become too prolific.

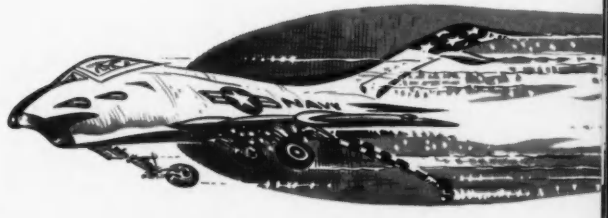
Each carrier airplane comes equipped with a recommended approach speed which is predicated on the following: (a) the strength of the airplane; (b) field and carrier evaluation; (c) shipboard carrier trials by Navy test pilots.

The arrested landing strength envelope for a high performance carrier airplane contains some interesting criteria.

The designers of the North American FJ-4, for example, were required by Navy specifications to provide sufficient strength for carrier landings up to 17 feet-per-second sink rate at normal landing weights. The sink rate at the time of impact on the carrier deck for either a

Continued next page

or



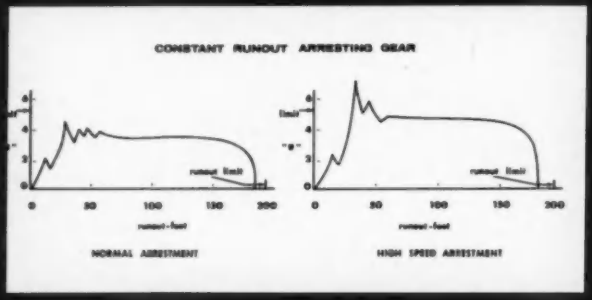
STRAFING RUN?

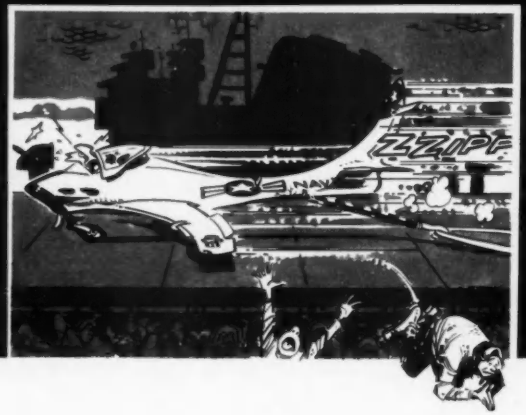
From North American Aviation: Interesting Criteria Worth Examining...

carrier approach or **strafing run?**

Continued

Arresting gear officers age rapidly when "zoomie" type landings place massive impact loads on arresting machinery and aircraft





mirror landing approach or a conventional LSO approach will average from 10 to 12 fps.

A 15 fps landing is a good teeth-rattler, and a 17 fps landing is a genuine eyeball popper.

By specification, the FJ-4 was also designed to withstand the forces of a 5.2-G deceleration arrestment, a landing 25 feet off center, as well as the terrific forces imposed on the nose gear from free flight arrestments.

Before the airplane ever gets to the fleet, its integrity for carrier operations has been well established. The contractor first demonstrates each of the design limit arrested landing points in the arresting gear installations at the Naval Air Test Center, and the Navy test pilots further substantiate the strength of the airplane during carrier trials on one of the East Coast carriers.

In fleet operations, most of the consequences of exceeding design structural limits are obvious to all observers and the pilot concerned. For example:

Exceeding the sink rate limit on the airplane in the form of an abnormally hard landing generally blows main landing gear tires or if the landing is hard enough, may wipe out the landing gear . . .

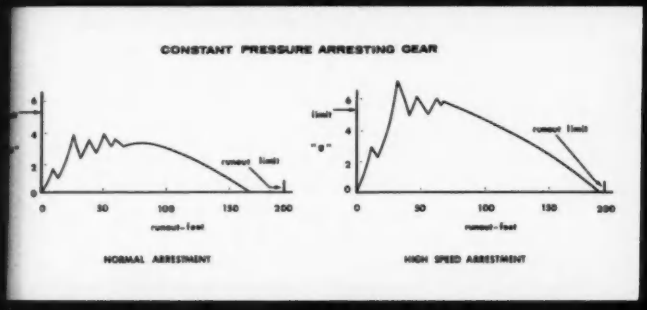
Pilots landing outside the off-center arrested landing limits are in for a rough ride as the plane yaws back and forth during the arresting rollout, or they may even find themselves in the catwalk or gun tubs . . .

The pilot who makes a fast approach and then flares his airplane so as to pick up an arresting wire long before the main gear touch the deck puts on a dazzling display of metal-bending as the plane crunches down on the nose gear . . .

The least obvious violation of the structural limits of the airplane, insofar as damage to the airplane is concerned, is the high speed arrestment which exceeds the deceleration limits of the airplane and arresting gear structure.

When the contractor builds his airplane to

Unhappy is the word for the imprudent pilot who mistakingly chooses to substitute excessive speed for shrewd technique.



withstand the forces of a 5.2-G deceleration in an arrested landing, he applies this limitation not only to the arresting hook and carry-through structure, but to the black boxes, radio navigation equipment, and other airplane components which are shock-mounted in the airplane.

When this G-limit is exceeded, trouble may occur in any of these places.

It may be difficult for a pilot to know when he is exceeding the deceleration limits on the airplane, but when he makes a fast approach, picks up an arresting wire and is thrown hard against his shoulder straps, and his oxygen mask stretches free from his face and then slams back and lodges between his teeth, he has in all likelihood exceeded the deceleration limits of the airplane!

Two general types of arresting gear equipment are being used on today's carriers. These are the constant-pressure arresting gear and the constant-runout arresting gear. Both types get

the job done effectively, but the constant-runout arresting gear is far more pleasant to drive into because of its smooth runout characteristics.

In the constant-pressure gear, a setting is made for a particular airplane predicated upon its estimated approach speed, weight and predicted runouts. If the airplane is faster than the normal approach speed, it pulls out more arresting cable.

Crazy mixed-up cycles have started on some ships whereby the arresting gear officer will notice that a particular group of pilots are pulling out more arresting cable than they should, indicating the approach speeds are faster than predicted. He therefore increases the setting on the arresting gear to prevent the planes from two-blocking his gear. The faster the planes land, the more he tightens down the settings on his gear.

All the while, forces on the airplane and the arresting gear are going up, up, up, and the structural integrity of the airplane and the arresting gear is going down, down, down.

In the constant-runout arresting gear used on most ships today, a setting is put into the gear for a gross weight of an airplane and the runout will be the same regardless of engagement speed. This makes for a very pleasant arresting runout but can be deceiving. A pilot knows that no matter how fast he hits the arresting gear, he will get the same smooth runout each time and will pull out the same amount of wire each time.

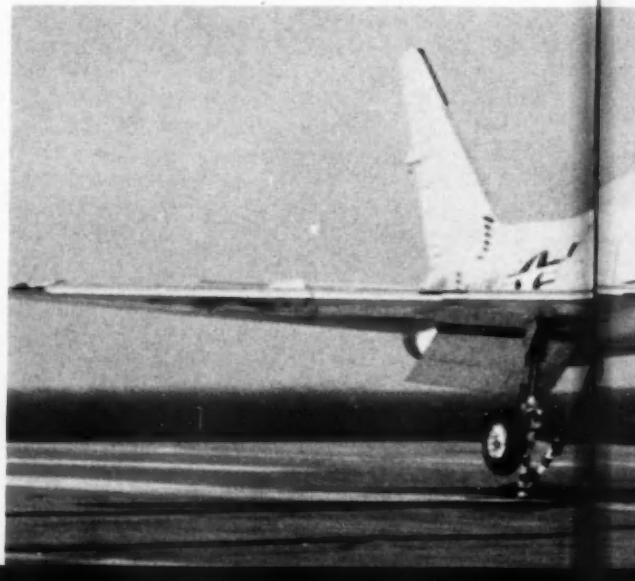
So, he gets careless about staying within a recommended approach speed range. In order to show how this might affect the structure of a fighter such as the FJ-4, two curves are presented here depicting a normal arrestment and a high-speed arrestment in the constant-pressure arresting gear.

In the above curves, notice first the loads which occur in the first .3-second following wire pickup. It has been determined that regardless of arresting gear setting, the faster the engagement, the greater the impact loads. This point is the most dangerous insofar as arresting gear cable is concerned, for at some particular speed for each arresting gear installation, the hook impact loads will break the wire *regardless of whether the hook is attached to an airplane or a bicycle.*

Notice that during the normal arrested landing the G-forces are well within the structural limits of the airplane and the runout is

North American engineering test pilot, John Moore, joined the Navy in 1942 and began jet flying in 1948. A jet instructor at Pensacola for two years, he later had two Korean tours in fighters. He then attended the test pilot training school at Patuxent and for two and one-half years was in the carrier suitability section of Flight Test there. This experience netted a total of some 350 carrier landings, and, we think, qualifies him as an excellent source of information on carrier landing technique.

Measure of Excellence: Straight deck, angled deck, prop or jet, for the naval aviator there's no greater satisfaction than that which comes from a good carrier landing.



. . . there's a wrong way, and a Right Way!

as predicted. In the high-speed engagement, the peak forces exceed structural limits of the airplane and hook, and notice by the runout that another danger exists, i.e. that of two-blocking the arresting gear. This will invariably pull the hook out the airplane.

These landings are best made with the pilot wearing a Momsen lung instead of an oxygen mask.

In the normal arrested landing in the constant-runout gear, shown here, the distribution of forces is smooth and consistent throughout the arresting runout. There is an impact peak force during the first part of the runout which is seldom felt by the pilot, and the runout feels smooth. In the high speed arrestment the runout still feels smooth, but the peak forces in the runout exceed the structural limit of the airplane.

The psychology of an angled deck carrier approach strongly influences pilot technique.

In the first place, the pilot is no longer landing into a barrier or a barricade nor is he landing into or toward a group of parked airplanes on the bow. Not one but two barriers have been removed—the metal or nylon barrier, and the psychological barrier. This is a superb advancement in the science of carrier operations.

On the other hand, the pilot must weigh the advantages of the angled deck carefully. He knows that he can be higher or faster in his approach and if he fails to get a wire on landing, he need only increase his angle of attack and fly away again to make another approach.

It must be realized and accepted, however, that although there is no longer a metal or nylon barrier confronting the pilot in his approach, there is another barrier equally formidable which is the structural limit of the airplane and the arresting gear.

Exceeding the structural limits of either in an angled deck landing may have the same dire effects as a barrier crash on an axial deck, only wetter.

You can still land too hard and blow tires or shear off landing gear.

You can still land too far off center and end up in the catwalk.

You can still flare excessively, free-flight the airplane and break off the nose gear, and you are even more likely to land too fast and exceed the limits of the arresting gear or airplane, which may break an arresting cable or the hook structure in the airplane and put you in the water.

A better understanding of the structural and aerodynamic capabilities of an airplane can improve the operational capabilities of any group of pilots and can reduce the accident rate as well.

In connection with the carrier landing limitations, here are some simple rules to consider:

- Practice the recommended approach speed during field carrier landing practice periods and get comfortable using it.
- Practice lining up on the center line on every landing and flying the airplane all the way to the deck.
- Use the same approach speed around the ship that you use on the field. Add 5 knots for the tender wife if you like, but only count the children for income tax deductions. ●

Look alive, here comes the gas truck."

"Send the forklift to unload that cargo."

"Get a tug, this plane goes to the barn."

"Tell the pilot an NC-5 will be right over."

Without doubt, the flight decks, ramps and parking areas do not belong exclusively to airplanes anymore.

Vehicles of all descriptions and functions weave busily around aircraft on the flight lines where once only fuel trucks were regular visitors.

In a way it was inevitable. Planes became too heavy to push by hand; their engines too demanding to be satisfied by internal battery for starting. Bigger cargo aircraft with their capacities rated in tons needed fast freight handling or suffer the fate of being bogged down in uneconomical waiting. In each case the answer to a special need was a mobile vehicle, such as the NC-5s, tractors, bomb trucks or forklifts.

Each of the ground vehicles added to the flight line brought a little more progress to naval aviation, but there was a price tag attached.

Ironically, the very equipment designed to furnish assistance to aircraft is frequently the cause of grounding the big "iron birds."

In a 12-month period ending in June 1956 a total of 228 accidents involving ground equipment and aircraft were reported.

An Aviation Safety Center report says these occurrences "range from overhaul damage of an F2H (caused by a driver shifting to forward gear when he intended to back away) to minor damage of an R5D (resulting from a forklift operator's failure to judge clearance)." The total cost to the Navy resulting from these accidents was over $2,097,955.

OF MU

Human Error High

The report goes on to say that 51 percent of the accidents can be attributed to "improper action by the operator." To this 51 percent is added the 11 percent of the category "Mechan-

Continued next page

LES AND MEN

ical failure accompanied by operator error" as well as some 8 to 10 percent of those accidents classified as cause "unknown." Thus it is estimated that some 70 percent of all aircraft/vehicle ground accidents can be said to involve human error.

When looking at a list of these accidents there seems to be an inexhaustable supply of novel ways to bash an airplane; an AD-6 with wings folded was towed through a low doorway . . . tail cone of an AD5W hit by an unknown tractor . . . oil truck backed into aircraft. But very quickly the novelty wears thin as the identical accidents appear again and again in slightly different form; Gas truck backed into nose section . . . NC-5 hit elevator . . . towed aircraft struck parked fire truck.

Since the three most frequently employed vehicles in ground handling of aircraft are the tractor (tug, mule or cat), truck, and starting unit, it is not surprising that this trio accounts for almost three out of four accidents.

One point which the Safety Center report brings up should be of interest to the people who write accident reports in their units. It states that an adequate description of the ground accident would aid in improving equipment safety features. For example, it is claimed repeatedly by drivers that their "foot slipped off the brake." Numerous statements of this sort, the report continues, certainly point up the necessity for attention to brake pedal design. Metal pedals, present in many ground vehicles, serve to invite this particular mishap.

Non-rated Men Involved in 50 Percent

Figure I shows a distribution of accidents by the service rate of the operator involved. It indicates two points which merit further study. First, the fact that non-rated operators are involved in nearly half of the accidents—a figure which would probably be larger if the "unknown" could be identified.

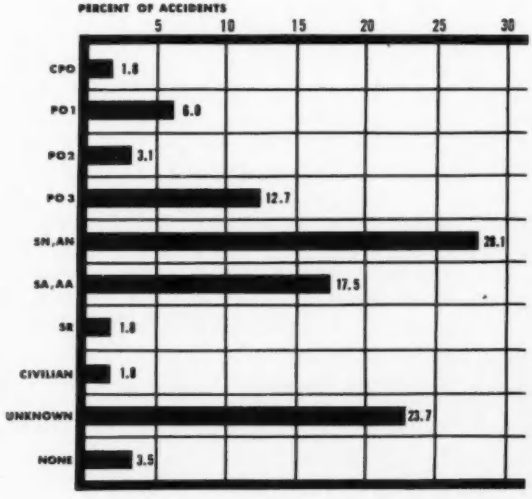
It is probable that non-rated men have the greatest opportunity to have such accidents by virtue of the fact that they handle ground movement of aircraft more frequently than

Please turn page

Forklift makes for easy airlift loading, but even a "soft" touch can break up (note circled gouge) a comparatively fragile airframe.

Close quarters for this HO4S. Much of the airplane bashing is a result of too little space between vehicle and aircraft. More attention is needed in the afternoons just before secure when drivers are more apt to become careless.

Figure I. Frequency of aircraft ground accident involving vehicles by rating of driver.



The driver backed to within 4 feet of the S2F and upon departing, inadvertently shifted into reverse. Dents and gashes in cowl are circled.

men of any other category. However, it is apparent that the greatest return for any training effort can be expected from the group having the highest occurrence (non-rated) and particularly in this early stage of the man's Navy career.

The second point is aimed at the reports which *failed to indicate the rating* of the vehicle operator involved in some 24 percent of the cases. In several of these cases it was reported that there was simply no knowledge of who was operating the vehicle at the time of the accident.

As might be anticipated, most of the accidents happened during daylight. A look at the hourly distribution yields the interesting fact that a significantly greater number of accidents occurred during the hours of 1300 to 1800 than during the five hour period of 0700 to 1200. Peak number of accidents came between 1500 and 1559. Since there is no indication of any significant change in the amount of ground activity for the afternoon hours the reason for the increase must lie elsewhere.

It is speculative as to whether or not this increase in accident frequency results from cumulative fatigue or mere "carelessness." Certainly the peak period occurs approximately at or shortly before liberty call on shore stations, and accidents may result from a desire to park'em, fuel'em and secure as soon as possible.

Season Affects Rate

The season of the year also affects the number of ground accidents. A considerably larger number happen during the "poor weather" months of October to March than the "good weather" months. Peak of the bad weather accidents came in January. February and March.

F3D nightfighter offered no contrast to night background for the driver of "FOLLOW ME" jeep.

This should be of particular note, since there is less aircraft activity during the winter. Therefore the need to train ground equipment operators specifically for the handling of aircraft under poor weather conditions would be a requirement in any overall training program.

Among the recommendations offered by the Safety Center report was the initiation of a brief training course, particularly for non-rated men, emphasizing such factors as towing procedures, proper vehicle operation, understanding of hand signals and general "rules of the road."

Such education coupled with knowledge that more alertness and caution is required in the afternoon during bad weather months may be one answer to reducing the aircraft/vehicle ground accidents in YOUR outfit.

Professional handling, on the ground as in the air, does wonders for accident prevention. Lest either maintenance or command discount the impact of this problem, a representative array of destruction is chronicled here. . . .

Item: The nosewheel retracted on an S2F-1 while the aircraft was in check. The investigation determined that the Delta damage accident was caused by ground personnel not taking proper precautions to install a nosegear safety lock or to properly tie down the tail to relieve the weight on the nose gear while installing service change 188.

Item: While an F9F-8 was being towed from the line, the tractor driver turned sharply before clearing the aircraft. The port horizontal stabilizer collided with the starboard trailing edge of the flap on a parked F9F-8. Delta damage caused by neglect on the part of the tractor driver to clear the aircraft before making his turn.

Item: An F2H-4, being towed, received Charlie damages to the nose section. Tow bar separated, allowing the tow bar to disconnect from the nosewheel. Aircraft moved forward overriding the tractor. Tow bar locking pin was either not in place, or came out during towing operations. The man in the cockpit was not alert to stop the aircraft even though told to do so by the tractor driver.

Item: A forklift driven by an authorized driver collided with the starboard elevator of an F9F-5 secured in the hangar bay of a carrier. The driver was operating the forklift in a confined space, and while his attention was "diverted" by an unknown person calling to him, the moving forklift collided with the aircraft.

Item: The nose radome and nose radar antenna of an A3D-1 received Delta damages from a 5000-gallon gasoline semi-trailer. The driver was positioning for refueling, misinterpreted the hand signals given to him, did not hear the warning shouts of the director, and backed into the nose of the aircraft.

Item: A WV-2 was being moved into the hangar at extremely close quarters. The starboard wing watch realized that the aircraft was coming too close to another WV-2, attempted to signal the tractor driver by hand signals but his view was obstructed. An attempt was made to call out to the driver but the driver was unable to hear due to the operation of an NC-5 nearby. When the driver lost sight of the wingman, he stopped, but not in time to prevent Delta damage to the lower section of the starboard rudder of one plane and the port tip tank of the other.

Item: The crew had rigged a Herman Nelson heater with the canvas tubes passed through the nosewheel doors to heat the interior of a P2V-5F being turned up in sub-zero weather. The tubes were secured in place with wire. The starboard engine had been running for approximately 25 minutes when one of the heater tubes came loose, dropped down, and was either sucked or blown into the starboard propeller, causing Delta damages.

Item: A pilot taxiing an AD-4 to the parking area of a strange field at night, engaged the wingfold mechanism and shortly thereafter felt the plane strike an object to port. His still spread wing had struck the rudder of a parked AD-6, destroying it and overstressing the fuselage. Excessive taxi speed was a cause of the accident.

Please turn page

OF MULES AND MEN

Continued

Item: A PBM was being towed tailfirst to an assigned parking area. Another aircraft was parked so as to partially block the approach to the parking apron. In attempting to circumnavigate the parked aircraft, clearance was misjudged between the port wingtip of the PBM and a street lamp, adjacent to the parking apron. Investigation revealed that the area through which the PBM was being towed was sufficient to accommodate the aircraft if proper caution and judgment were exercised. The plane director allowed the aircraft to be towed into a hazardous situation without taking proper precautionary measures. There was structural damage to the wing tip and aileron.

Item: An R4D-8 received Delta damages with a torn stabilizer cap and crumpled rudder while being towed into a hangar. None of the four men involved in towing the aircraft knew that the tail would not clear an overhead beam inside the hangar. They did know that an R4D-6 would clear, so they assumed the R4D-8 would also. Cause of the accident was lack of proper supervision.

Item: Another airplane-vehicle collision: a TV-2 received Delta damages to port tip tank from a tractor. The driver of the tractor parked it pointed at the aircraft, set the emergency brake (but not firmly), and left the tractor to service the aircraft. The tractor was still in gear, and "drove" itself into the TV.

Item: Charlie damage to an AD-6 occurred when an ordnanceman left a cartridge on the wing stub when the wings were folded. Along came the rocket loading crew; the wings were spread to load HVARs and the cartridge jammed on the main spar as the wings were lowered. The cap on top of the main spar, outboard wing panel was ripped. Cost of replacing the outer wing panel: $6540. ●

ODE TO TAXI DIRECTORS

You spell it Pal—
  Which way do we went?
I'm stopped and singing
  "The Pilot's Lament."

Be firm in your manner,
  Wave your arms—not
    your knees;
I'll follow you gladly—
  (Just one of you please!)

—The Buckeyeneer

NOTES FROM YOUR FLIGHT SURGEON

AD BAILOUT—'NO TROUBLE WHATSOEVER'

After completing one rocket run the pilot of an AD-6 was advised by a wingman that his plane was trailing white smoke. The AD pilot turned toward his base but within a few seconds he felt a slight shudder followed by an immediate loss of power. The cockpit filled with smoke and he opened the canopy to clear it.

After the canopy had traveled aft a few inches the pilot felt intense heat and saw flames entering the cockpit from the port side. He immediately closed the canopy and transmitted his intention to bail out. He then opened the canopy and left the aircraft by the starboard side.

"No difficulty was experienced in leaving the plane," he reported. "The aircraft went into a slightly nose-down attitude as soon as I released the stick pressure (probably as a result of loss of power) and I cleared the horizontal stabilizer by several feet. Speed of the plane at the time of bailout is estimated at between 140 and 160 knots at 6500 feet. After clearing the tail section I pulled the ripcord and the parachute blossomed immediately."

Comment by the C.O. of the unit was as follows: "There exists a definite reluctance among AD pilots to bail out. Many stories are 'readyroom circulated' about the hazards involved and that the stabilizer will cause a large crease in the middle of your back. (The pilot) told me he had thought many times of how he would much rather attempt a forced landing under almost any conditions than bail out of an AD. However, when faced with a burning aircraft situation, he executed what I consider a perfect escape.

"He does attribute part of his safe escape to the fact that he had practiced several jumps from a mockup plane into a net. But the main point to be emphasized is that he experienced no trouble whatsoever—no near-miss of the stabilizer—no jamming in the cockpit and no trouble exiting over the side."

HOOK, LINE AND SINKER

During a catapult shot of an S2F the starboard engine failed with no apparent symptom of malfunction. With full flaps and a launching speed of 80 knots it was not possible to accelerate to single-engine speed before settling into the water.

A controlled, wings-level, slightly nose-high entry into the water was made and the four crewmembers were picked up quickly. Although no injuries were recorded the copilot had a close call. He had survived a previous ditching and a decision was formed in his mind that it would be better to have the pararaft lanyard attached for ease in recovering the raft if needed.

Not so—on this ditching the raft and parachute became so entangled in the cockpit that the plane very nearly dragged the copilot down as it sank—a phenomenon that would have been more probable had he incurred some disabling injury. By rapid manipulation of the snap fastener, the lanyard, raft and plane sank without the copilot.

IT NEVER FAILS

The pilot had made a normal takeoff as one of a flight of *Cutlasses*, when the tower informed him that his starboard landing gear was trailing. All emergency maneuvers to put it in down-and-locked failed. The hazards of an attempted field landing were discussed with personnel on the ground—and, the pilot elected to eject, and headed out to sea so the plane would not be over a populated area.

He was without a life jacket.

He said, "In the haste of briefing and loading personal gear aboard my airplane, it was forgotten. Once I realized I had forgotten my Mae West, I elected to go without rather than delay the flight. All I can add on that score is—*it never fails—!*"

He ejected successfully, parachuting to the water.

Fortunately he had no difficulty floating; quick-disconnect harness fastenings made it easy to remove the harness; and the helicopter picked him up quickly. His deferred-type of emergency had made it possible for him to orbit until rescue was standing by.

It's not always that easy.

CLOSED CIRCUIT

A query has been received questioning the use of 100 percent oxygen in the presence of cockpit fumes. This indicates a healthy fear of the explosive properties of oxygen and oil.

The answer—if you notice smoke or fuel fumes in the cockpit, go on 100 percent oxygen immediately. This does not invite an explosion because a setting of "100 percent oxygen" creates a closed circuit oxygen system, excluding cockpit air and fumes. ●

Notes and Comments on Maintenance

HOW TO PARK REFUELER—"Park the refueler as far from the aircraft as the hose will permit. It should be parked in a position so that it may be quickly driven away in the event of a fire. This means that the refueler should be parked parallel to or headed away from the wing. There must be no obstructions in front of the refueler to prevent its being driven away in an emergency."

The foregoing advice is offered by the Handbook on Aircraft Refueling, NavAer 06-5-502, 15 Jan 1956. However, a good point to keep in mind is that the blind area behind the refueler often contributes to refueler/aircraft collisions. So, avoid backing toward that wing.

EXPIRATION DATE FOR CANOPY JETTISON INITIATOR AND SEAT EJECTOR CARTRIDGES—There is no canopy jettison initiator expiration date as yet. But both the canopy initiator BLX32-1(GFE) and canopy remover M1A1(GFE) are to be replaced at the first overhaul of the aircraft.

These parts are received as a completely sealed government inspected GFE item. The individual cartridges in these assemblies are *not* to be removed.

Only complete new assemblies are to be used for replacement parts, not just the cartridges.

Age limits of these items will be determined and issued by BuAer.

The seat ejector Mk1 Mod O cartridges come in a sealed metal can. When the seal is broken, each cartridge is stamped with its expiration date. BuAer T.O. 19-55 outlines this procedure. The expiration date is 2 years after the package is opened.

STICKY BUSINESS—The use of methyl chloroform to remove tire and tube remains found stuck to aircraft surfaces after a tire blowout is recommended by North American Aviation, Inc. It is reported to be more effective than scraping it off, and at the same time avoids the use of flammable mixtures.

The solvent may be applied over the area and allowed to soften the tire remains and then wiped away.

DRY CHEMICALS FOR WHEEL FIRES—The pilot of an F3D aborted his takeoff when fire warning lights of both engines came ON. Airspeed was about 110 knots and remaining runway was about 3500 feet. Severe braking with a high gross weight brought the aircraft to a stop 465 feet off the end of the runway.

No damage to the aircraft resulted during the rollout. However, as the pilot deplaned after securing the cockpit, the port brake assembly was observed to be emitting some smoke and flames.

Five minutes later, while the crash crew was directing CO_2 and water on the port brake assembly, the port tire blew out. The force of the escaping air caused the lower section of the port main gear door assembly to crack and bend and a number of large dents were inflicted at the junction of the front and rear cowling sections.

The First Endorsement of the report noted that Although the damage incurred resulted from a tire blowing out, an article appearing in "Douglas Summary of Service Trouble Reports of 23 July 1956" is considered pertinent. Extracts from this article state in part "Studies indicate that the mere fact that a fire has occurred in a wheel will not cause it to blow apart as the wheel will withstand more pressure than the tire. However, the sudden cooling of a hot wheel by applying CO_2, or even water, can cause such rapid cooling of the wheel that it will fracture, resulting in a serious explosion. It should be emphasized that only dry chemical extinguishing agents should be applied to wheel fires."

HRS/HO4S CORROSION—Several helicopter units have reported considerable trouble with corrosion. All units are advised to check the fuel sumps located in the bottom center of the forward and rear tanks. While operating aboard ship or around salt water areas heavy corrosion from salt water can be extremely dangerous.

TALLY 'MON'—The number of aircraft a carrier air group may have ready for a given day's operation depends largely upon the quality of maintenance its mechanics turn out the night before.

In checking for corrosion, remove the under-belly and check the sump fittings fore and aft Part No. S14-30-6226) as well as the 12 attaching bolts (P/N AN4H5A), sump plug and gasket.

It is also advisable to remove the access covers from the floor of the troop compartment and check the fuel transmitters, electrical connections and attaching bolts for corrosion damage.

Salt water corrosion is very damaging and costly especially in helicopter fuel systems. Also, corrosion of the fuel transmitters can cause erratic or no readings on the fuel gauges and may interfere with an urgent flight or an air sea rescue mission.

More on next page

From the Ground Up

FROM

THE

GROUND UP

Continued

NUTS FOR AD LANDING GEAR CONTROL LINKAGE—A periodic occurrence in AD aircraft is the improper installation of bolts in the landing gear control linkage. This invariably results in a wheels-up landing unless the pilot is able to actuate some portion of the linkage not affected.

In the latest instance a bolt connecting the landing gear control crank to the landing gear push rod (refer AN01-40ALF-4, Fig. 90, items 24 and 27) was missing. The pilot was able to actuate the push rod and saved the Navy one major accident.

A similar impending situation was discovered in one other aircraft. Several aircraft were found to have bolts in the linkage with elastic stop nuts. The replacement of elastic stop nuts in this type installation with castellated nuts and cotter pins is required by Aircraft Structural Hardware Manual AN-01-1A-8.

SERVICING LANDING GEAR SHOCK STRUTS — Accident AmpFURs report repeated damage to main landing gear safety scissors switches of Model F2H-3/4 aircraft.

The Contractor advises that over-servicing of struts induces a severe compression load on the spacer, Part Number 15-41907, which can cause the spacer to buckle. This spacer deformation permits over-travel of the strut piston which allows the landing gear scissors to open further and crush the scissors switch, R-17-5-25109-177, against the strut assembly. Damage to the scissors switch indicates possible damage to the spacer. The spacer should be inspected for compression damage prior to installing a new scissors switch.

It is recommended that all maintenance personnel concerned be directed to use extreme care when servicing landing gear struts in accordance with ComAirPac F2H Aircraft Maintenance Bulletin No. 14-55, Main Landing Gear Serving, of 16 December 1955, when preparing for special stores operation.

***BEECH* GEAR NOTE**—The following is an excerpt from a ComFAirHawaii Electronics Officers Conference concerning two recent failures in the SNB landing gear actuator switchbox P/N R82-BEA-894-180737.

"The landing gear actuator switchbox has four microswitches which are part of the landing gear warning system. These microswitches are located on top of the landing actuator switch, and are activated by four cams and four arms. Microswitches No. 1 and 2 are actuated in the DOWN position and No. 3 and 4 are actuated in the UP position. The arms in the switchbox have been apparently failing due to mental fatigue.

"First indications of failure of the arms are intermittent actuation of the warning horn or light. Arms of switches No. 1 and 2 of the DOWN position have been the first to fail and are closely followed by failures of arms of switches No. 3 and 4. It is therefore recommended to replace all four arms when one arm fails because the other three arms usually fail a short time later."

JET STARTING UNIT TECHNIQUES—A gas turbine compressor jet starting unit was started without opening the tail cone. As a result, it is reported, the unit received extensive damage and almost exploded.

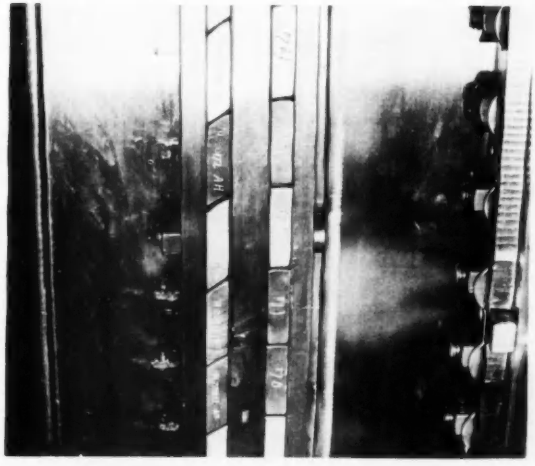
Only personnel who have been thoroughly instructed in operating and safety procedures of the unit should operate it.

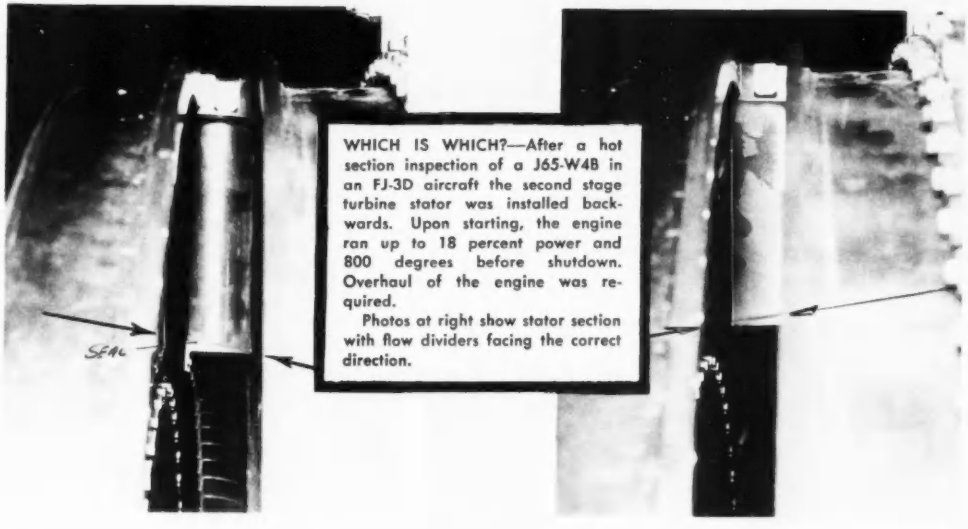
BROKEN CIRCLE—After takeoff in an F7U, the pilot attempted to retract landing gear. The starboard main landing gear remained in trail position. The actuating cylinder piston rod attaching bolt had not been properly secured. All emergency procedures failed and due to the undesirable crash landing characteristics in this configuration for this type aircraft, the pilot elected to abandon the aircraft. At 10,000 feet, over water, he made a successful ejection and was rescued by helicopter.

The cause of this accident was attributed to maintenance personnel error in their failure to pass necessary information concerning an incompleted job to the next crew.

Murphy's Law*

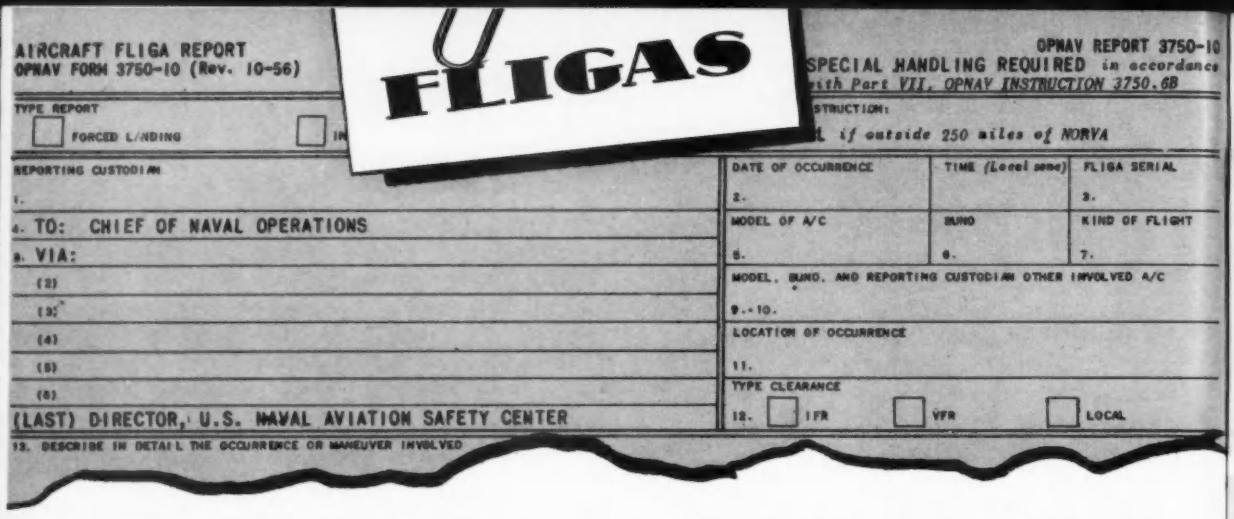
* If an aircraft part can be installed incorrectly, someone will install it that way.





WHICH IS WHICH?—After a hot section inspection of a J65-W4B in an FJ-3D aircraft the second stage turbine stator was installed backwards. Upon starting, the engine ran up to 18 percent power and 800 degrees before shutdown. Overhaul of the engine was required.

Photos at right show stator section with flow dividers facing the correct direction.



13. Maintenance personnel were turning up a J48 engine mounted in a test stand in the high power turnup area. The test stand was secured with 8 doubled manila lines and 3 steel tiedown reels plus chocks. The test stand did not have brakes incorporated. While passing through approximately 70% rpm the engine broke loose from its tiedowns, traveled 400 feet passing two lines of parked aircraft, veered suddenly, tipped over and struck the port wingtip of an F3H *Demon*. The test stand's self-contained fuel tank was thrown off and ignited approximately 150 feet from the *Demon*. The aircraft did not catch fire.

14. Equal purchase on tiedown lines was not obtained due to the inadequate location of the pad eyes in the high power turnup area. The uneven strain on these lines facilitated progressive breaking.

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13. Forklift driver drove lift backward from R6D-1 loading cargo door and was passing under port wing when forklift collided with wing. Lift had not been lowered fully.

14. Caused by inattention to duty by forklift driver and not lowering lift fully at cargo door, and then proceeding through an unauthorized driving area.

As a prevention to further accidents; forklifts will be lowered to the full down position before lift is moved out of loading area. Yellow lines will be painted to show proper route of forklift when passing around wingtip of aircraft. Men will be further instructed in all precautions to be taken around aircraft while loading and unloading operations are in progress. As a further precaution, a petty officer will be assigned to control and be responsible for all works on outside of the aircraft. When vehicles are moving around aircraft it is the petty officer's job and responsibility to be present and to see that all ground safety regulations and precautions are observed.

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13. Mechanic started engine of AD-6 for turnup after completion of 2nd intermediate check. The tail began to rise due to extension of lower dive flap assembly. The operator repositioned the selector then moments later noticed an indication of ZERO engine oil pressure. He cut the engine.

14. The check crew failed to replenish the engine oil after all oil had been drained. Prior to starting the engine the mechanic failed to check the cockpit. This resulted in the actuation of the dive flaps. This accident is the result of negligence on the part of the check crew and oversight on the part of the operator. Continued training and indoctrination is indicated and is in progress.

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13. Towing of UF-1 past parked P5M resulted in UF-1 port wingtip overriding starboard elevator of P5M causing limited damage to the P5M and no damage to the UF.

14. Aircraft was being towed in confined space with other aircraft in area turning up making it difficult for the wing walkers to relay verbal warning of the impending contact.

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13. Ground accident. During flight deck respotting, an FJ-3 was pushed tail-first into the nosewheeel strut fairing of another parked FJ-3.

14. Negligence on the part of plane director. He did not allow ample clearance between aircraft. Director didn't carry a whistle for transmitting brake signals to the plane captain.

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13. While spotting an AD-6, the plane's rudder collided with the propeller hub of a second AD-6, due to a delayed brake application by the plane captain.

14. The plane captain allowed his attention to be diverted at the time of the director's whistle, and was too slow in applying the brakes. Since this accident the importance of paying strict attention to the director's signals at all times has been brought to the attention of all plane captains and they will continue to be reminded of this importance.

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13. Landing gear dropcheck being conducted on F4D-1 BuNo 134789. Mechanic connected hydraulic jenny to BuNo 1348000 by mistake. No jacks in place. Mechanic applied power to aircraft, raised gear handle, and nose gear retracted. Aircraft partially collapsed striking hydraulic jenny and starboard drop tank.

14. Improper procedure on part of man conducting dropcheck and

lack of proper supervision. Actuation of gear handle on aircraft not supported by jacks.

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13. About 20 minutes after takeoff in F3D-2, and while climbing thru 22,000 ft, pilot experienced an explosion within the aircraft and a loss of *all* electrical power. The lower escape chute door was jettisoned to effect bailout but pilot and AIO remained with aircraft since a fire did not occur. Aircraft landed safely without further incident.

14. Apparent failure of the crew compartment door: blowing open and striking the upper deck of the escape chute causing a short in the Gen-Volt regulator circuit.

Safety of Flight AMPFUR being submitted; also reference AAR 4-56 in which same conditions existed; further study is being conducted.

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13. TF-1 was being moved backwards from hangar deck onto No. 2 elevator. As main wheels contacted ramp of elevator door track, plane rocked backward causing nosewheel to leave deck. Wind on vertical stabilizer caused plane to pivot. Aircraft's starboard elevator tip struck aft track of No. 2 elevator.

14. Nosewheel left deck causing plane handlers to lose control of aircraft. Strength of wind caused aircraft to pivot in spite of application of brakes. Plane directors have been instructed to check wind before moving aircraft onto No. 2 elevator.

FOLLOW-UP ON MATERIAL FAILURES IN AIRCRAFT ACCIDENTS AND FLIGAS

Since 1 July 1956, the effective date of OpNav Instruction 3750.6B, numerous questions concerning interpretations of various portions of the instruction have been raised. Follow-up procedure on aircraft accidents and FLIGAs caused by material failure is one area wherein considerable different interpretations has been evident.

In subparagraph E. 2. of Part V there is the statement, "When the investigation of material is required in connection with the aircraft accident or FLIGA reports, a specific message request to the cognizant Bureau of Aeronautics Maintenance Representative (BAMR) will be made to determine the cognizant O&R facility and shipping instructions." The Naval Aviation Safety Center interprets this "material" to include all material, the failure of which has caused or is suspected to have caused aircraft accidents or FLIGAs and in which the determination of the precise cause of component failures is beyond the normally expected capabilities of the reporting custodian and local supporting activities.

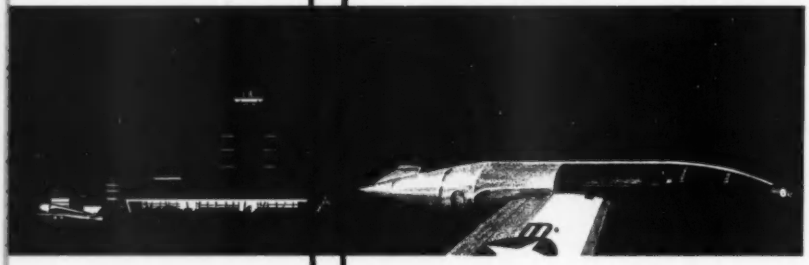
According to the Safety Center's interpretation of the instruction, a preliminary message report of an aircraft accident involving known material failure of major components should not have both "UNKNOWN" listed after item GOLF and "NO" listed after item NOVEMBER without some additional clarification such as "MSG SUPP TO FOL" or "PENDING COMPL LOCAL INVESTIGATION" listed after items GOLF and NOVEMBER respectively. Obvious exceptions to this interpretation are the cases wherein the aircraft or components can not be recovered or the parts are too badly mangled to permit an adequate Disassembly and Inspection Report (DIR). The same interpretation applies to FLIGAs as well as AARs.

Generally speaking, no investigation of a material failure aircraft accident or FLIGA should be considered complete unless all efforts available to the Navy to determine the precise cause have been exhausted. If the precise cause can not be determined locally then request a priority DIR.

To assist in determining the proper activity to conduct the investigation, a summary of all available information pertinent to the failure or malfunction should be supplied the BAMR by the requesting activity. This should include sufficient identifying data such as date and type of occurrence, bureau number and model of aircraft involved.

In many cases a mere material examination obtained through customer service at the nearest Overhaul and Repair activity will suffice. Include the Naval Aviation Safety Center as information addressees on all requests for priority DIRs and all message Ampfurs resulting from material failures or malfunctions which cause aircraft accidents.

TIP TANK



Miscellaneous aviation safety information

COPILOTS ARE PEOPLE, TOO

There's been quite a bit of mail in response to a captain's gripe about cockpit complacency (Accident Prevention Bulletin 55-19). Using the positive approach to the problem, here are a few tips sent in by copilots on how to win friends and influence the boys on your right:

- If the fellow in the righthand seat is making the landing, let him lower the gear and flaps, or at least decide when it should be done.
- Show your awareness of his ability by letting him handle the radio . . . if you want a copilot to act like a captain and share the responsibility, let him have some responsibility to share. After all, he's no fledgling.
- Demonstrate your astuteness in training by treating him as a fellow airman, not a mere subordinate.
- Opening doors is pure basic politeness, but it should not be too one-sided.
- Encourage your copilot by reminding him you were once an aerial sharecropper yourself.—*Flight Safety Foundation Accident Prevention Bulletin 55-5.*

POTENTIAL TV PROBLEM

The T-33 (or TV-2 if you prefer) turned out to be the Air Force's biggest offender in premature gear retraction accidents. Significantly, very few were caused by students and this is in line with the Air Force report which said, "The study indicates there is no direct relationship between premature gear retraction accidents and pilot-flying-time in aircraft type and model."

HOTTER 'N

The jet blast of an FJ-3 with its engine turning up at full power has a temperature of 380° F and a velocity of 271 knots 25 feet aft of its tail cone. At 50 feet the temperature is 213°, the velocity 102 knots and at 75 feet, 156° at 56 knots; unless a blast deflector is behind the plane, the area 200 feet aft should be clear.

One accident occurred recently aboard a carrier wherein a mechanic working on an aircraft was fatally burned by jet blast from an aircraft taxiing into position in line with his place of work.

OVERLAPPING VOR RADIALS

From time to time pilots comment to the effect that the outbound radial of one VOR along a given Victor Airway does not coincide with the inbound radial of the next VOR station. Some of these comments are occasioned by the fact that all VOR radials are specified in *magnetic* bearing and the magnetic variation applicable to a given VOR is that variation *at the facility.* Perhaps the following, supplied us by CAA Flight Inspection, with respect to a reported 10-degree misalignment between Winslow and Santa Fe VORs, will clear up much of the discussion of these several variables:

"The great circle route between the Santa Fe and Winslow VORs, a distance of 232 nautical miles, would employ the 252° radial of Santa Fe and the 67° (247° to) radial to Winslow VOR. The 5° nominal difference between these radials is due to a 2° magnetic variation difference, and a 3° correction for the 5° change in longitude between the VORs.

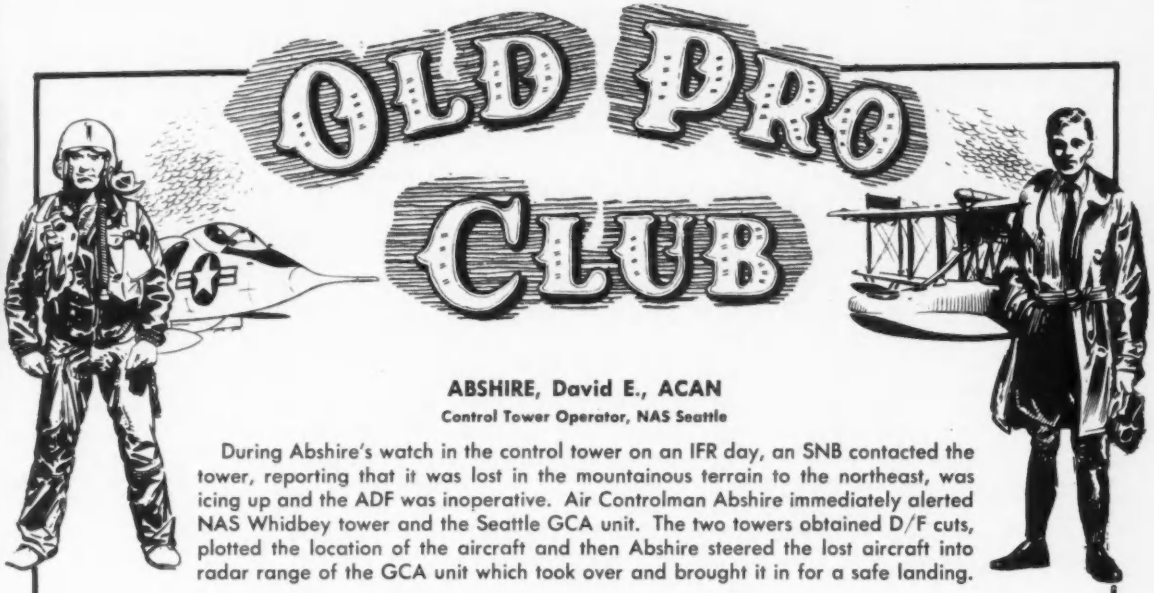
"These two radials would line up with each other at any point along the track, if the station and airborne errors were zero. You will note that this would require a 5° OBS change when switching from one VOR to the other"—*FSF Bul 56-208.*

REEL DEMONSTRATION

The complaint read, "I'm having difficulty convincing the squadron they should use shoulder harness when I can't demonstrate that the inertia reel will lock under G-force." . . . The answer was that he was not using the proper procedure to stress the reel!

Anyone who is having difficulty in demonstrating or testing the inertia reel should consult Technical Order 12-53.

The wide variation in types of protective equipment and test procedures makes it easy to understand how an improper test could be used; such was the case in this instance.



ABSHIRE, David E., ACAN

Control Tower Operator, NAS Seattle

During Abshire's watch in the control tower on an IFR day, an SNB contacted the tower, reporting that it was lost in the mountainous terrain to the northeast, was icing up and the ADF was inoperative. Air Controlman Abshire immediately alerted NAS Whidbey tower and the Seattle GCA unit. The two towers obtained D/F cuts, plotted the location of the aircraft and then Abshire steered the lost aircraft into radar range of the GCA unit which took over and brought it in for a safe landing.

NavCad Thomas J. HANSON

Aircraft: T-28C, NAAS Saufley Field

Attempting to level off from a formation descent at 1500 feet, Cadet Hanson lost elevator control due to a material failure. Quickly recognizing the difficulty, he immediately employed his elevator trim tab and was able to pull the aircraft out at 1000 feet. He returned to the field and by skillfully manipulating the elevator trim tab, landed safely with no damage to the aircraft.

LTJG Albert W. WHEELER, USNR-R

Aircraft: HO4S-3, HS-6

On a night syllabus training flight in an HO4S-3 while at 500 feet and one mile off shore, Lt (jg) Wheeler experienced complete engine failure. He immediately set up an auto-rotational descent. Just prior to reaching the water, the engine started to run again. He transitioned to forward flight and with severe engine vibrations, barely enough power to maintain altitude, headed for the beach where he effected a successful landing in a vacant lot. There was no additional damage to the helicopter.

LTJG Noel ROBBINS

Aircraft: S2F VS-36

Due to a material failure, the starboard main landing gear of the S2F-1 could not be lowered. With the port gear and nosewheel extended, LTJG Robbins made a practice approach to the field arresting gear and then came round again, landed on the two extended wheels, feathered the propellers and held the starboard wing up with aileron control. The aircraft suffered only minor damage due to the perfect landing and exceptional technique demonstrated by the pilot.

Recognition of heads-up flying is essential to a positive program of flight safety. Each month, Approach will acknowledge certain selected individuals whose exhibited flying ability merits membership. Old Pro's also receive a wallet membership card as a memento of the occasion. Commanding officers are invited to submit nominations for selection.

CDR A. L. Lewis

Advanced Training Unit 201, based at NAS Corpus Christi, has earned a WELL DONE by its record of 14,861 hours without an accident of any sort.

ATU-201 is engaged in student operational training in F9F *Panthers*. Its accident-free record dates from August 1956 when a minor accident brought an end to a previous 7000-hour accident-free period. Since August 1956, the unit has flown its 14,861 hours and made 12,384 landings. This is the equivalent of an aircraft staying airborne 40 hours a week for seven and one-half years! It is also the equivalent of flying a *Panther* around the world 208 times.

During calendar year 1956, ATU-201 had an average of 65 aircraft assigned and flew a total of 37,594 hours without injury to a single student pilot!

ATU-201, known as the "Tigers," is commanded by CDR A. L. Lewis, who sets the example for all of his pilots in many ways. CDR Lewis attributed the excelling achievement of the unit to outstanding spirit, teamwork and aggressiveness by all personnel —officers, enlisted men and the students who have been trained by the unit during the period.

Well done